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The 1980 Financial Reform Act: What Will It Do?

MORGAN J. LYNGE, JR.

On 31 March 1980 President Carter signed into law the "Depository Institutions Deregulation and Monetary Control Act of 1980." This act has been described as the most far-reaching piece of banking legislation enacted since 1935. It affects virtually all financial institutions in the US, provides for major changes in the rules governing their activities, and represents a giant step towards enabling all depository institutions to operate on a "level playing field." While most of the provisions directly affect financial institutions, depositors and borrowers will also be affected. The purpose of this article is to examine the immediate and expected future impacts of this act on financial institutions, the public, and the conduct of monetary policy.

Legislative Background of the Act

Although the act passed Congress rather quickly (by legislative standards), its gestation period spans at least a decade. The financial industry is subject to a high degree of regulation which affects the structure of the industry, prices of its products, and the products which are sold. Because of the important influence of regulation the ability of the industry to adapt to a changing environment is constrained. As new financial assets are developed, as interest rates reach new highs and fluctuate widely, regulatory change is often needed to allow new activities. Pressures for change come from financial institutions, from the consumer and business customers of the institutions, and from regulators who are charged with maintaining the soundness and competitiveness of financial institutions. Additional pressures are generated by the need to maintain effective monetary policies which operate through the financial system.

Morgan J. Lynge, Jr., is assistant professor in the Department of Finance, University of Illinois at Urbana-Champaign. He teaches undergraduate and graduate courses in the areas of money and banking, financial institutions and markets, commercial banking, and central banking. His research interests focus on the operations of the financial system and particularly on commercial banks. He is the author of several articles concerning the structure, riskiness, and operating strategies of commercial banks. He has taught courses to both US and Japanese bankers.

These pressures for change have spawned several major inquiries into the workings and regulation of financial institutions. In 1970 the Commission on Financial Structure and Regulation (the Hunt Commission) was created to conduct a thorough analysis of the structure and regulation of financial institutions. In its 1971 report to the President the commission made a number of recommendations that would lead to greater flexibility and operating freedom for financial institutions. It stressed that all institutions competing in the same markets be allowed to do so on an equal basis.

In 1975 a separate study of financial institutions regulation was initiated by the House Committee on Banking, Currency, and Housing. This study, titled *Financial Institutions and the Nation's Economy* (the FINE study), also developed a number of recommendations that would relax regulations of financial institutions allowing greater competition.

Although there are differences between the recommendations of these two inquiries, there are many similarities. These include the removal of rate ceilings on deposits, expanded lending powers for all deposit financial institutions, similar tax treatment for all institutions, third-party payment accounts (checking accounts) for all deposit institutions, and equal reserve requirements for all financial institutions. Some of these recommendations were included in a number of bills that were prepared and debated in Congress beginning in 1973. Some

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of these bills passed one house of Congress but not the other. Some went as far as conference committees. But the net result was that no major reforms became law.

During this period of legislative nondecision, economic events were intensifying the pressures for action. Interest rates peaked at historically high levels in 1974. Since deposit rates paid by financial institutions were limited by law, disintermediation occurred. Depositors withdrew funds from passbook savings accounts whose rates of interest were restricted by the law to 5 to 5¼ percent and purchased Treasury bills or money market mutual fund shares yielding much higher and unrestricted rates. In 1978 regulatory authorities designed the money market certificate of deposit with a ceiling rate tied to a Treasury bill rate. The idea was to create a deposit on which the rate of interest paid was more closely related to market rates of interest.

The market test of this new instrument was close at hand. In 1979 and 1980 interest rates rose to levels above those reached in 1974. Even with a minimum denomination of $10,000 the new money market certificates proved wildly popular. By May 1980 these certificates accounted for over 37 percent of the sources of funds for savings and loan associations. This experiment helped hone the public's desire for financial instruments whose yields were not restrained by ceilings.

Another trend that continued during the 1970s was an erosion in Federal Reserve membership by commercial banks. Banks with state charters have the option of joining the Federal Reserve (the Fed). Benefits of membership include access to borrowing directly from the Fed and use of Fed services such as check clearing and wire transfers. The primary cost of membership is being subject to reserve requirements set by the Fed. In recent years the number of banks belonging to the Fed has declined, indicating that for many the costs of membership outweigh the benefits. This membership "problem," from the point of view of the Fed, impacts on its ability to carry out monetary policy. If the Fed chooses to alter the reserve requirements of member banks to attempt to achieve some economic goal, a declining number of member banks reduces the impact of such an action. Thus the Fed has argued for some time for a solution to the membership problem in order to improve the effectiveness of monetary policy.

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Director, Robert W. Resek; *Assistant to the Director,* William R. Bryan; *Editor,* Nelle Wagner; *Research Assistants,* Thomas B. Bryan, Phillip A. Cartwright, John F. Schnell, and Russell Smith.

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A 1979 decision by the courts also applied pressure for action. In that year the court declared certain activities of financial institutions — share drafts at credit unions, automatic transfer accounts at commercial banks, and remote service facilities by savings and loan associations — to be illegal, since they were not specifically authorized by Congress. The court delayed its ban on such activities until 31 December 1979 to give Congress time to pass authorizing legislation. At year-end 1979 Congress passed a bill allowing these activities on a temporary basis until 31 March 1980. The permanent authorization of these three activities is a part of the Financial Reform Act and helped provide pressure for timely passage of the act.

Provisions of the Act

As the culmination of the lengthy period of study and the increasing pressures for action, the Financial Reform Act was passed and signed into law. As the full title of the act indicates, its provisions can be grouped under two major headings: (1) depository institutions deregulation, and (2) monetary control. The "Exhibit" lists some of the major provisions of the act under each of these headings.

The deregulation provisions generally increase the scope of deposit-taking, lending, and pricing activities of all deposit institutions. They move toward a regulatory environment that allows credit unions, savings and loan

EXHIBIT

SUMMARY OF FINANCIAL REFORM ACT

Deregulation provisions	*Effective date*
(1) Permits nationwide NOW accounts for all deposit institutions	31 December 1980
(2) Phases out deposit interest rate ceilings	Over a 6-year period
(3) Expands the lending powers of credit unions, savings and loan associations, and mutual savings banks	1 September 1980
(4) Eliminates state usury ceilings on first mortgage loans for residences. Raises loan rate ceiling for credit union loans	31 March 1980
(5) Increases level of federally insured deposits	31 March 1980
Monetary control provisions	
(1) Establishes reserve requirements for transactions accounts at all deposit institutions. Removes reserve requirements on personal savings accounts	Four-year phase-in for member banks; 8-year phase-in for nonmember banks and other deposit institutions, both beginning 1 September 1980
(2) Allows borrowing from the Fed for all deposit institutions	31 March 1980
(3) Makes Fed services available to all deposit institutions on a fee basis	1 September 1981

associations, mutual savings banks, and commercial banks to engage in similar activities.

(1) Initiates nationwide NOW accounts. Negotiable order of withdrawal (NOW) accounts are essentially interest-bearing checking accounts. These accounts have previously been allowed in the New England states, New York, and New Jersey. Expansion nationwide provides the opportunity for nonbank deposit institutions to get into the checking account business for individuals and nonprofit organizations. Individuals will now have the opportunity to earn interest on their checking account balances. Since these accounts can be used to make payments, the definition of money (M1B definition) has been revised to include NOW account balances.

(2) Eliminates deposit interest rate ceilings. Banks (since the 1930s) and other deposit institutions (since the 1960s) have faced maximum rates of interest that they can pay on savings and time deposit accounts. Originally imposed to restrict destructive competition among banks, these ceilings in the last 15 years have exacerbated the phenomenon of disintermediation. The act creates a Depository Institutions Deregulation Committee and charges it with the task of phasing out these ceilings over a six-year period. Implicit in this provision is the view that these ceilings discourage saving and create inequities for depositors, especially those with modest savings. This committee has already implemented several changes, including an increase in the ceiling rates for six-month money-market certificates and the 30-month small-saver certificates.

(3) Expands lending powers. The nonbank depository financial institutions — credit unions, mutual savings banks, and savings and loan associations — operate under an array of restrictions on the kinds of loans and investments they can make. These restrictions have caused these institutions to become specialized in consumer loans (credit unions) and mortgage loans (mutual savings banks and savings and loan associations). The act broadens the scope of loans that can be made by these institutions. Federal credit unions can now make residential real estate loans; federal mutual savings banks can make certain commercial loans; savings and loan associations are given higher loan ceilings, expanded investment authority, and are allowed to issue credit cards and establish trust activities.

(4) Eliminates usury ceilings. The laws in various states limiting the rate charged on residential mortgage loans are preempted. States may reimpose these ceilings by 1 April 1983. State usury ceilings on certain business and agricultural loans are also temporarily raised. The credit union loan rate ceiling of 12 percent is raised to 15 percent, and increased flexibility in raising it further is granted.

(5) Increases deposit insurance level. As has been well publicized, the act increases deposit insurance from $40,000 to $100,000 per account. This results in about 70 percent of the dollar value of aggregate deposits being insured; previously about 63 percent was insured.

The second category of provisions is oriented toward improving the Fed's ability to carry out monetary policy, and makes some changes in access to Federal Reserve services.

(1) Establishes new reserve requirements. This provision addresses the membership problem for the Federal Reserve. A reserve requirement will be uniformly applied to all transactions accounts at all deposit institutions, whether Fed members or not. Transactions accounts include checking, NOW, telephone transfer and automatic transfer accounts, and share drafts. The reserve requirement for all institutions with these accounts will be 3 percent for that portion below $25 million and 12 percent for the portion above $25 million. The Fed has the authority to vary the 12 percent requirement between 8 and 14 percent. In addition all deposit institutions must maintain reserves of 3 percent (this can be varied by the Fed between 0 and 9 percent) against their nonpersonal time deposits. There are no reserve requirements on personal time and savings deposits. The act also gives the Fed authority, under "extraordinary circumstances," to exceed the stated ranges of reserve requirements and to impose reserve requirements on other types of liabilities.

These new reserve requirements will require substantial adjustments by most institutions. For current Fed member banks, the new reserve requirements will result in a lower level of required reserves. For these banks reserve requirements will be phased down over a four-year period to the new levels. For nonmember banks and all nonbank deposit institutions holding reservable deposits, the new requirements will be phased in over an eight-year period.

(2) Extends borrowing from the Fed. Before passage of the act, only member banks could borrow at the Fed's discount window. Beginning immediately any deposit institution subject to the new reserve requirement will have the same borrowing privilege as did member banks.

(3) Establishes fees for Fed services. As was the case for discount window borrowing prior to the act, only member banks could utilize the services made available by the Fed for no charge — including coin and currency services, check clearing and collection, wire transfers, and automated clearinghouse services. The act requires the Fed to establish a schedule of fees that it will charge for its services. These services will, beginning 1 September 1981, be made available to all deposit institutions on a fee basis.

As can be seen, these three provisions taken together "solve" the Fed membership problem by making it irrelevant. All deposit institutions must hold uniformly calculated required reserves, and can borrow from or buy services from the Fed. Thus these costs and benefits are no longer unique to membership in the Fed.

The Financial Reform Act contains a number of other provisions not highlighted here. The purpose of some of these other provisions are, again, deregulation by simplifying truth-in-lending disclosures and simplifying reporting and overlapping regulations of the several regulatory agencies.

Impact of the Act: Who and What?

The 1980 act alters many of the rules of the game for financial institutions. The result will be the development of a new game plan for many of them. These changed operating strategies will present new opportunities and problems for depositors and borrowers. Finally, the Fed's conduct of monetary policy could change in light of its new powers. Although some of the following is speculative, here is a look at how the act may influence some of the major participating groups.

The *nonbank financial institutions* now have the opportunity that some have wanted and others have feared for some time: the chance to compete on a more equal basis with commercial banks for the total financial business of individuals. Savings and loan associations, mutual savings banks, and credit unions may become the family financial centers of the future. Because they can offer transaction accounts (NOWs) and share drafts, credit cards, trust services, and consumer and mortgage loans, they no longer need to take a back seat to the "full service" commercial bank. As deposit ceilings are removed, they can also compete more effectively for deposit sources of funds. Freedom to pay higher rates on deposits and to charge higher rates on loans will permit operations to continue even during periods of high interest rates as long as a credit demand continues. This expanded operating field comes at the cost of maintaining required reserves (on transaction and nonpersonal time accounts) and the loss of the ¼ percent differential advantage over commercial banks in deposit rates. While the reserve burden may not be great, overall costs of doing business will be somewhat higher, and vary more with market interest rates. This more competitive environment will require effective management and, most likely, the disappearance of some institutions through failure or merger.

These institutions will be under tighter scrutiny and control by the Fed than they have been accustomed to. If the Fed alters reserve requirements frequently to achieve monetary policy objectives, nonbank financial institutions will have to adapt to this outside influence on their operating strategies. In summary, nonbank financial institutions will gain both the opportunities and problems of a freer, more competitive environment along with the rights and responsibilities formerly belonging to Fed member commercial banks.

The *commercial banks* will also find their rules changed somewhat. Non-Fed member banks are now facing federally imposed reserve requirements, although the entire new reserve requirement structure has generally lower requirements than the old structure applied to member banks. The reserve requirement burden is likely to be greater for these banks than for the nonbanks because of their higher levels of transactions accounts and nonpersonal time deposits. Nonmember banks also gain access to discount window borrowing and Fed services although the latter will be on a fee basis. Member banks will benefit from the less burdensome reserve requirement structure but must begin paying fees for Fed services. All banks will be allowed to offer interest-bearing NOW accounts, but this is a less attractive authority, since they already offer transactions accounts (checking accounts) on which no interest is paid. All banks will benefit from the removal of loan rate ceilings and the loss of the ¼ percentage point advantage in deposit rates previously held by nonbanks. This latter change has been a sore point for bankers for over a decade.

Many smaller retail-oriented banks will face increased competition from nonbank financial institutions for household business in the loan and deposit markets. Because of the new rules some banks may switch their emphasis from consumer business to servicing business customers where the transaction account advantage remains. The correspondent banking business may also be changed. Those larger, member banks who used Fed services without fees and "sold" those services to smaller banks will face a change in their cost calculus. Depending on the level of the fees established for Fed services, some of the services provided by correspondent banks may be priced out of the market. Respondent banks will have to reassess their correspondent relationships, and correspondent banks may have to alter their prices or means of pricing of correspondent services. Certainly a large portion of the correspondent structure, involving services and products not available from the Fed, will remain.

The *public* will be faced with changes in their dealings with financial institutions. The authorization of NOW accounts provide individuals with an alternative, or at least a complement, to the checking account. In the New England area, where NOW accounts have been offered since the early 1970s, at least two-thirds of the financial institutions have chosen to offer them. Public acceptance has grown with over 70 households out of every 100 having a NOW account in Massachusetts. Competitive pressures will likely result in many banks and nonbank financial institutions offering this type of account. However, along with receiving interest on transaction accounts consumers may be required to pay for the check clearing and record keeping associated with these accounts. Following the establishment of fees by the Fed, financial institutions may require explicit payments for services received by their account holders. While it is right that one should pay for what is received, this new charge may diminish the attractiveness of receiving interest on transactions accounts.

The removal of deposit rate ceilings will allow depositors to shop around for the highest rate paid. This competitiveness in deposit rates may raise the structure of deposit rates paid by financial institutions, and this increased cost will no doubt be reflected in higher loan rates charged. It has long been argued that deposit rate ceilings penalize small depositors, with a subsidy being received by borrowers. In an environment with no deposit or loan rate ceilings this subsidy will no longer exist. Individuals will have at their disposal a wider range of products and services available from nonbank institutions that were formerly obtainable only from commercial banks. This larger array of choices will increase the convenience of obtaining financial services for this group of customers.

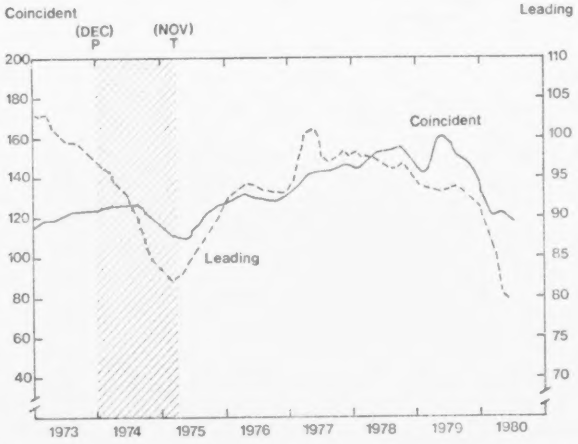
Finally, the *Federal Reserve* will be affected by the

Financial Reform Act. The power of the Fed to influence financial institutions through reserve requirements will be extended to over 40,000 firms from about 5,600 now. If the Fed is willing to make frequent, small adjustments in these requirement percentages, the behavior of many institutions can be influenced. In addition the information-reporting requirement accompanying the reserve requirements can give the Fed much more accurate and timely data on movements in the money stock. In short, the ability of the Fed to control money growth will be improved. Still, the appropriateness of the goals for money growth that the Fed sets, and the vigor with which the Fed exercises its power will determine the successfulness of monetary policy.

Conclusions

The Depository Institutions Deregulation and Monetary Control Act of 1980 has introduced changes that will continue to be phased in over the next six to eight years. Therefore, its impact will be felt in an evolutionary and gradual way. The financial institutions of the late 1980s, partly as a result of this act, should be more diverse with less emphasis on one type of lending, and more competitive with one another, especially for the business of consumers. The distinctions between commercial banks and the other financial institutions, distinctions created more by regulation than economics, will be diminished. Deposit and loan customers of these institutions will receive and pay interest rates that more closely resemble market rates of interest at all times. If all goes well, the financial institutions industry will be characterized by vigorous, competitive, sound institutions efficiently providing financial products to their customers. If this is the result of the 1980 act, the time spent waiting for its reforms will have been worth it.

Illinois Economic Indicators



Note: *P* and *T* designate peaks and troughs of the business cycle for the US as defined by the National Bureau of Economic Research.
Bureau of Economic and Business Research

The coincident indicator declined by 0.9 percent in July. Although this is not welcome news, this month's drop is well below the 1.4 percent skid during the previous month. The primary factor contributing to the downturn appears to have been the number of employees in the nonagricultural sector, which fell by 0.2 percent over the past month on a seasonally adjusted basis.

On a far more pleasant note, the leading indicator turned upward by 0.3 percent. The increase was led by a sharp rebound in both building permits and the layoff rate in manufacturing. Although the overall use in the indicator is less robust than might be desired, the numbers lend some support to the contention that the end of the recession in Illinois is in sight.

Illinois Business Indexes

Item	July 1980	June 1980	May 1980	April 1980	July 1979
Leading indicator (1969=100)	79.5	79.2	80.1	82.5	94.0
Coincident indicator (1969=100)	119.3	120.4	122.14	121.2	159.3
Employment-manufacturing (in thousands)	1,179.4	1,207.2	1,213.4	1,200.4	1,282.5
Average weekly hours-manufacturing	38.7	39.3	39.4	39.8	40.5
Weekly earnings-manufacturing	$313.08	$314.01	$311.26	$310.44	$798.12
Layoff rate-Chicago	1.3	1.6	1.6	1.3	0.4
Help wanted advertising-Chicago (1967=100)[1]	68.0	69.0	67.0	74.0	117.0
Help wanted advertising-St. Louis (1967=100)[1]	52.0	56.0	58.0	62.0	85.0
Ordinary life insurance sales (in millions)	$1,504	$1,581	$1,648	$1,632	$1,476
Retail sales (in millions)	n.a.	3,781	4,037	3,731	3,736
Coal production (in thousands of tons)	4,070	5,246	5,585	5,664	3,661
Petroleum production (in thousands of barrels)	1,880	1,820	1,929	1,921	1,871
Vendor performance (percent)	30.8	25.9	30.2	42.5	60.0
Building permits (in thousands)					
Residential housing units	2.85	1.70	1.15	.94	3.74
Value of residential housing	$107,752	$71,587	$52,525	$49,642	$62,921
Value of nonresidential housing					
Industrial buildings	$20,400	$28,095	$25,756	$22,819	$55,019
Office, banks, and professional buildings	$58,029	$34,404	$25,861	$36,516	$57,941
Stores and other mercantile buildings	$21,281	$32,622	$34,482	$29,827	$36,932
Other	$30,708	$41,004	$40,168	$27,560	$98,707
Consumer price index					
North Central US	-	134.7	-	131.3	-
North Central/population more than 4,000,000	-	136.7	-	133.2	-
North Central/population 385,000 to 1,250,000	-	134.4	-	130.9	-
North Central/population 75,000 to 385,000	-	131.9	-	128.9	-
North Central/population less than 75,000	-	128.7	-	131.9	-
Chicago	246.8	248.2	243.1	240.1	217.4
St. Louis	245.0	-	241.8	-	216.9
Prices received by farmers	121	110	105	104	120
	1980:I	1979:IV	1979:III	1979:II	1979:I
Personal income (in millions)	$116,977	$114,130	$112,234	$108,287	$106,555
Total labor and proprietors' income by place of work					
By type					
Wage and salary disbursements	74,587	72,834	72,281	70,122	69,622
Other labor income	7,925	7,622	7,535	7,216	7,027
Proprietors' income	7,236	7,620	7,327	6,962	6,653
Farm	1,713	2,126	1,977	1,789	1,464
Nonfarm	5,522	5,493	5,350	5,172	5,189
By industry					
Farm	2,053	2,449	2,296	2,101	1,762
Nonfarm	87,695	85,627	84,846	82,199	81,540
Private	75,721	73,881	73,301	71,308	70,885
Ag. serv., for., fish., and other	204	207	204	197	187
Mining	997	980	917	919	881
Construction	5,105	4,929	4,794	4,918	5,097
Manufacturing	25,571	24,592	25,607	24,808	24,929
Nondurable goods	7,936	8,228	7,963	7,710	7,696
Durable goods	17,636	16,364	17,643	17,098	17,233
Transportation and public utilities	7,346	7,206	6,923	6,757	6,682
Wholesale trade	7,085	7,111	6,866	6,737	6,522
Retail trade	8,186	8,131	7,998	7,842	7,897
Finance, insurance, and real estate	6,252	6,031	5,787	5,394	5,097
Services	14,974	14,695	14,206	13,736	13,593
Government and government enterprises	11,974	11,746	11,546	10,891	10,655
Federal, civilian	1,936	1,926	1,864	1,832	1,816
Federal, military	572	552	513	515	505
State and local	9,465	9,269	9,169	8,544	8,334
Income by place of work					
Wage and salary disbursements	74,587	72,834	72,281	70,122	69,622
Farm	301	286	283	277	266
Ag. serv., for., fish., and other	128	130	128	122	116
Mining	761	750	703	707	680
Construction	4,223	4,032	3,907	4,004	4,120
Manufacturing	22,023	21,217	22,125	21,477	21,637
Nondurable goods	6,899	7,165	6,945	6,737	6,742
Durable goods	15,125	14,051	15,180	14,740	14,895
Transportation and public utilities	6,113	6,072	5,844	5,709	5,660
Wholesale trade	6,166	6,200	5,995	5,896	5,715
Retail trade	6,910	6,878	6,768	6,655	6,708
Finance, insurance, and real estate	4,921	4,767	4,555	4,253	4,010
Services	11,313	11,106	10,766	10,447	10,359
Government and government enterprise	11,615	11,397	11,206	10,575	10,351
Federal, civilian	1,846	1,836	1,778	1,749	1,735
Federal, military	572	552	513	515	505
State and local	9,197	9,008	8,914	8,311	8,111

Sources available upon request. [1] Source: The Conference Board, Help Wanted Advertising, July 1980.
n.a. not available.

Comparative Economic Data for Selected Illinois Cities, July 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)		Employment (000)		Estimated work force unemployed (percent)	
	July 1980	% change from July 1979	July 1980	% change from July 1979	July 1980	% change from July 1979	July 1980	% change from July 1979	July 1980	July 1979
ILLINOIS	$76,349[a]	n.a.	3,505.5[a]	*-3.8*	$50,316[a]	*+11.1*	5,566.0	*-3.2*	*9.9*	*5.1*
NORTHERN ILLINOIS										
Chicago	$42,588	*-71.4*	1,638.8	*-8.3*	37,679	*+8.7*	3,178.9[b]	*+0.3*	*9.1*[b]	*4.9*[b]
Aurora	1,161	*-83.6*	109.7	*-5.7*	634	*+2.9*	36.4	*-1.9*	*10.6*	*4.4*
Elgin	1,766	*-14.4*	101.5	*-6.1*	695	*+6.6*	28.1	*+0.4*	*10.1*	*4.7*
Joliet	1,317	*-25.6*	369.7	*-5.9*	351	*+11.1*	34.8[b]	*-2.0*	*16.0*[b]	*7.8*[b]
Kankakee	1,311	*-55.8*	84.7[c]	*+15.6*	323	*+63.1*	37.5	*-5.0*	*14.3*	*8.3*
Rock Island-Moline	4,233	*+33.8*	132.3[d]	*+0.3*	1,912	*+74.3*	102.8[e]	*-6.2*	*9.7*[e]	*4.4*[e]
Rockford	2,482	*-77.5*	162.1	*-6.8*	956	*+7.4*	121.0[b]	*-6.2*	*12.1*[b]	*4.9*[b]
CENTRAL ILLINOIS										
Bloomington-Normal	2,991	*-68.0*	56.2	*+6.6*	994	*+9.1*	53.7[b]	*-2.2*	*7.1*[b]	*3.1*[b]
Champaign-Urbana	1,072	*-28.9*	57.7	*+2.5*	710	*+22.4*	73.5[b]	*-2.4*	*6.7*[b]	*4.2*[b]
Danville	3,912	*+357.5*	104.4	*+124.0*	223	*+15.4*	16.2	*-11.0*	*17.5*	*7.9*
Decatur	1,215	*-44.3*	134.4	*+5.9*	531	*+11.1*	53.2[b]	*-3.3*	*15.9*[b]	*6.2*[b]
Galesburg	265	*-95.4*	29.7[c]	*-2.3*	179	*+35.6*	13.0	*-13.9*	*18.9*	*7.1*
Peoria	4,146	*-89.3*	202.8	*+0.9*	1,696	*+35.1*	161.0[b]	*-5.0*	*9.3*[b]	*4.3*[b]
Quincy	2,281	*+101.2*	41.8	*-2.8*	261	*+14.5*	18.0	*-5.2*	*12.5*	*6.0*
Springfield	3,120	*-81.8*	131.6	*+4.1*	2,024	*-6.2*	92.5[b]	*+1.8*	*8.6*[b]	*5.1*[b]
SOUTHERN ILLINOIS										
East St. Louis	n.a.	n.a.	20.7	*-21.0*	224	*+33.3*	21.6	*-6.1*	*15.1*	*10.1*
Alton	1,389	*286.9*	56.9	*-32.4*	154	*+12.4*	13.5	*-6.2*	*15.3*	*6.7*
Belleville	602	*-58.6*	31.9	*-0.9*	400	*+11.7*	17.1	*-5.5*	*14.4*	*9.2*
Carbondale-Murphysboro	498	*-81.3*	38.6	*4.6*	370	*+31.7*	10.6[f]	*-4.5*	*9.3*[f]	*6.4*[f]

[a] Total for cities listed. [b] Data for Standard Metropolitan Statistical Area. [c] Includes immediately surrounding territory. [d] Includes East Moline. [e] Illinois portion of Davenport-Rock Island Moline SMSA. [f] Data for city of Carbondale. n.a. not available.

Recovery Without Cure

It has become fashionable to assert that the economy has begun to recover. Confidence of renewed strength is nurtured by a turnaround in consumer purchases, an improvement in labor markets, and a tightening in credit markets. Most important, however, confidence is based on hope — and the proclivity of Americans to read long-term significance into short-term shifts.

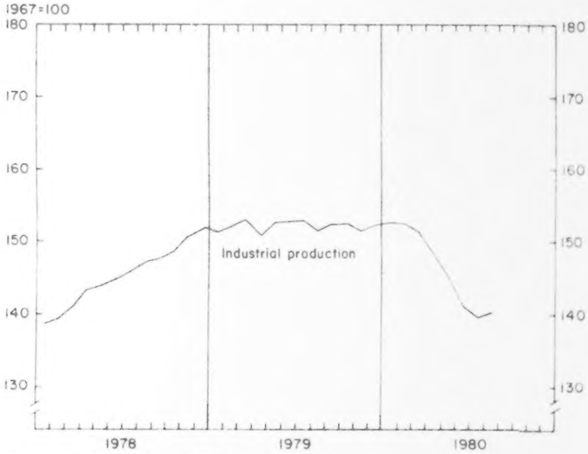
Notwithstanding the respite from the marked economic decline that characterized the spring and early summer, prudence suggests that our attention should not be diverted from the major problems facing the economy. The economy has not grown, on balance, for more than a year and a half, and it is operating substantially below capacity. Productivity has been virtually unchanged for much of the past decade. Within this milieu of persistent weakness, inflation has become a dominant problem. Whatever the character of the recent or current improvement, the economy continues to face serious problems.

Output Stabilizes?

Preliminary estimates of the nation's output indicate little change during the July–September quarter. Revised estimates of real GNP for the April–June quarter -- that is, gross national product adjusted for inflation have concentrated the downturn into that time frame. As a result, the third-quarter performance looks good by comparison. Analysts have been able to seize upon the lessening in the *rate* of decline as evidence that recovery is at hand. As time unfolds, it may turn out that such a conclusion was appropriate. But that history has yet to be written.

The major evidence of renewed strength may be found in industrial production and in housing. The Index of Industrial Production — a measure of output of mines, factories, and utilities — rose 0.5 percent in August, according to preliminary estimates. Although the increase is welcome, it should be pointed out that such a gain is smaller than typical month-to-month revisions in the data. For example, the July statistic was revised upward from 138.8 (1967 = 100) to 139.8, an increase of 0.7 percent. Since January, industrial output has fallen at a 13.2 percent annual rate.

Industrial Production



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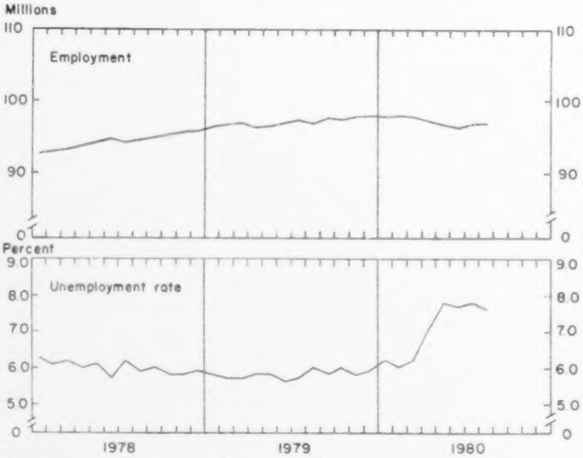
Employment and Unemployment Rate



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Housing has rebounded from its dismal performance early this year. In the past three months housing starts averaged just under 1.3 million units (at an annual rate), up about one-third from the preceding three months. In turn, the gains in housing were reflected in the strengthening in production, as rising output of household goods has been a major factor in improved industrial output. Notwithstanding recent increases, housing starts in 1980 are running substantially below their year-earlier pace.

Spending Expands

Employment has risen at nearly a 3 percent rate since June, reversing a four-month decline. Gains in employment are an aspect of the strengthening in production. Reflecting the growth in employment, income increases have accelerated. Since June personal income has expanded at a 15 percent annual rate; by comparison, in the preceding half-year income grew at about a 6 percent rate.

Unemployment has stabilized since May, following sharp increases in April and May. During the early months of the year unemployment averaged about 6 percent of the labor force; then, during a two-month period jumped to just under 8 percent. By mid-August, however, unemployment had drifted to 7.6 percent of the work force.

Consumer spending has strengthened. Households have responded to improvements in employment and income by stepping up their purchases. Following a four-month decline, since May retail sales have expanded at nearly a 30 percent annual rate. Moreover, the rise in sales has been *real.* That is, the physical volume of retail purchases has expanded. In 1979, retail sales rose 8.6 percent; but prices rose even more, and real retail sales declined.

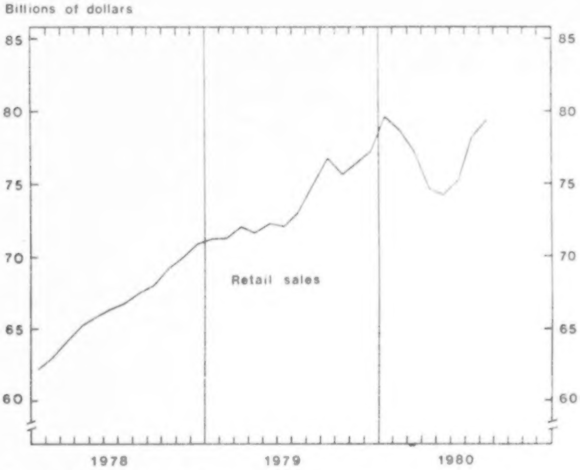
Capital spending by businesses is expected to show an 8.7 percent increase during 1980. But prices of capital equipment are expected to rise even more rapidly. As a result, *real* capital expenditures are expected to register a small decline. In 1979 real capital spending was 6.1 percent greater than in the preceding year.

Inflation Moderates?

There is an impression that the rate of inflation has moderated in recent months. The probable explanation for this impression is that measured price changes since April have been markedly lower than they had been during the preceding winter months. For example, since April consumer prices have risen at about an 8 percent annual rate; from December to April they rose at a 16.6 percent rate.

It is plausible to believe that nothing has happened to the rate of inflation, despite gyrations in month-to-month statistics. Inflation last winter was probably overstated; inflation since April is probably understated. The *core,* or underlying, rate of inflation remains within or near the 10-12 percent range. It is likely that *measured* inflation will accelerate.

Retail Sales



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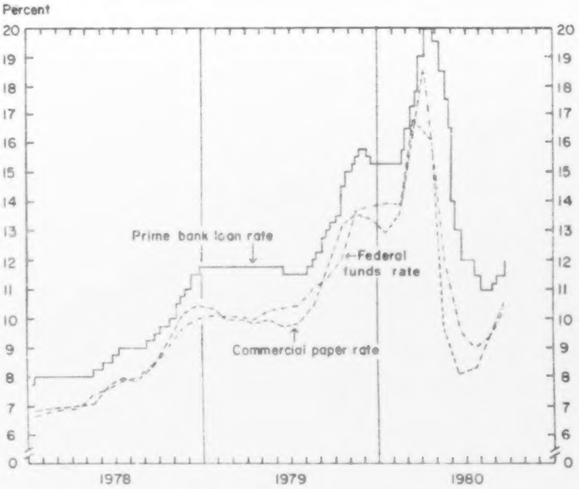
Interest Rates



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Credit Tightens and Money Eases

Interest rates have moved upward since June. Following sharp declines from March to June, interest rates have again bolted upward. Even so, they remain well below levels reached earlier this year.

The prime rate — that is, the interest rate banks charge to their most credit-worthy borrowers — declined from 20 percent in mid-April to 11 percent in late August and early July. Since then the prime rate has again moved above 12 percent. Movements in the prime rate are responsive to changes in the cost of funds to banks. To an important extent banks cover their needs for marginal funds by borrowing on the federal funds market and by selling 90-day certificates of deposit. Since June the cost of funds to banks has risen more than two percentage points.

Increasing credit demands have driven interest rates higher. Borrowing by businesses (at large reporting banks) has risen at nearly a 16 percent rate since mid-May. Such borrowing had declined from March to late May.

Monetary actions have been expansive during the period that interest rates have been rising. Since late April the money supply (M1A) has risen at more than a 10 percent annual rate. The money supply had declined during the period when interest rates were falling. It is often the case that monetary growth accelerates when interest rates rise, and decelerates when interest rates are falling. These patterns reflect the Federal Reserve's proclivity to moderate, or limit, interest rate movements — notwithstanding their October 1979 announcement that they would, henceforth, avoid such behavior.

WILLIAM R. BRYAN

The New Financial Reporting for the Effects of Changing Prices

RICHARD E. ZIEGLER

The accounting profession has moved toward handling the effects of inflation on financial statements. With its adoption of Financial Accounting Standard No. 33, the Financial Accounting Standards Board (FASB), the private-sector body that sets accounting rules, took the first step to augment the basic financial statements to reflect the impact of changing prices. Many users of financial statements have understood the need to consider the impact of changing prices in their interpretation of the financial reports of an enterprise. For others, the significance of the impact of changing prices may not have been fully comprehended until quantitative information on the effects was directly reported in the financial statements. Effective for fiscal years ending on or after 25 December 1979, the statement requires that an estimated 1,200 publicly held companies disclose supplementary information in their annual reports concerning the impact of changing prices.

Recognizing that there is no universally accepted accounting solution to reporting changing prices, the FASB has taken an experimental approach. Two different sets of disclosures — one for current cost information and another for constant dollar information — are required. The Consumer Price Index for urban consumers has been selected as the basis for making the constant dollar restatement. The statement does not modify the existing measurement concepts used to prepare the primary financial statements, and the required supplementary disclosures are not intended to address issues other than those arising from changing prices.

For many companies, the effects of the restatements have not been insignificant. As one example, General Electric Company reported $1.41 billion in profits last year. Adjusted for general inflation, that profit would be $1.06 billion. The adjustment for current costs results in a profit of $986 million. Examples of the impact on selected other companies appear in Table 1.

The statement does not require a comprehensive restatement of the financial statements. Rather, the requirements are limited to measuring and reporting the effects of changing prices of inventory, property, plant and equipment, cost of goods sold, and depreciation expense. Specific guidance as to what is encompassed in each of these categories of accounts is provided in the statement. For many companies, these are the accounts for which the impact of changing prices is greatest. No adjustments are required to other revenues, expenses, gains, or losses.

Mr. Ziegler, Ph.D., CPA, is associate professor and associate head of the Department of Accountancy at the University of Illinois at Urbana-Champaign. He is coauthor of *Modern Auditing,* a text recently published by Warren, Gorham, and Lamont.

Table 1. Effect of Price Changes on Reported Profits (1979 Income in Millions of Dollars)

	As reported in primary statements	Restated in current dollars	Restated to current cost
Alcoa	$ 505	$ 292	$ 280
Armco	221	118	97
Burroughs	306	193	345
Ford	1,169	372	213
General Motors	2,893	1,776	1,803
W. R. Grace	223	100	83
Xerox	563	345	428

The disclosure requirements encompass both the current year and a five-year history. For the year being reported, the disclosures are (1) historical cost income from continuing operations; (2) constant dollar income from continuing operations; (3) current cost income from continuing operations; (4) purchasing power gain (or loss) on net monetary items; (5) net increase (decrease) in the current cost of inventories and property, plant and equipment, net of general price inflation; and (6) current cost of inventory and property, plant and equipment at the end of the current fiscal year. The reporting requirement for current cost information is effective for annual reports beginning in 1980.

The current cost information required under Statement 33 differs somewhat from the replacement cost information formerly required by the Securities and Exchange Commission (SEC) under Accounting Series Release (ASR) 190. Under Statement 33, the current cost of an asset is the lowest current "buying price or production cost of an asset of the same age and in the same condition as the asset owned." Replacement cost, as used in the SEC's ASR 190 was defined as the lowest cost of obtaining "a new asset of equivalent operating or productive capability." Although the two cost concepts differ, the measurement of a given resource could be the same under either approach.

The disclosure requirements for the five-year summary encompass much of the information that is to be reported for each current year. One of the additional requirements is to report the effect on "net assets" (that is, shareholders' equity) of the restatements for both the constant dollar and current cost.

At its option, the enterprise may prepare its constant dollar and current cost disclosures on the basis of a comprehensive restatement of the financial statements, rather than restating only the items required under Statement 33.

An illustration of one format that may be used by companies that are subject to these disclosure requirements appears as Table 2. A commentary follows for each of the new disclosures, indicated by ( ), that is required.

TABLE 2. Statement of Income From Continuing Operations Adjusted for Changing Prices For the Year Ended 31 December 1980 (In (000s) of Dollars)

	As reported in the primary statements	Adjusted for general inflation	Adjusted for changes in specific prices (current costs)
Net sales and other operating revenues	$253,000	$253,000	$253,000
Cost of goods sold	197,000	204,384	205,408
Depreciation and amortization expense	10,000	14,130	19,500
Other operating expense	20,835	20,835	20,835
Interest expense	7,165	7,165	7,165
Provision for income taxes	9,000	9,000	9,000
	244,000	255,514	261,908
Income (loss) from continuing operations	$ 9,000 (A)	$ (2,514) (B)	$ (8,908) (C)
Gain from decline in purchasing power of net amounts owed		$ 7,729	$ 7,729 (D)
Increase in specific prices (current cost) of inventories and property, plant, and equipment held during the year[a]			$ 24,608
Effect of increase in general price level			18,959
Excess of increase in specific prices over increase in the general price level			$ 5,649 (E)

Source: Financial Accounting Standard No. 33, page 33.

[a] At 31 December 1980 current cost of inventory was $65,700 and current cost of property, plant, and equipment, net of accumulated depreciation was $85,100.

Item (A) discloses the income from continuing operations (as opposed to the "bottom line," net income) as reported in the traditional, historic-cost-based, financial statements. It is repeated here for purposes of highlighting the comparisons. For example, if at the beginning of the year, an enterprise purchased $1,000 in inventory and later sold it for $1,500, the cost of goods sold would be $1,000 and the measure of income would be $500.

Item (B) contains the income (loss) determined by restating the historic dollars of specified income statement accounts (cost of goods sold and depreciation), as defined in the statement, to an average-of-the-year dollar for the year being reported. Continuing the foregoing example, if the general price level had increased by 10 percent during the year, the cost of goods sold under the constant dollar concept would be $1,100. That amount would have the same purchasing power as $1,000 at the start of the period. If the inventory were sold for $1,500, income would be measured at $400.

Two aspects of the constant dollar restatement procedure are apparent. It does not represent a departure from the historic cost basis of recording transactions. The restatement simply restates past years' transactions into dollars with the same purchasing power as today's. Nor does the amount shown for the constant dollar restatement attempt to reflect current prices. That value may have changed in a different direction from that of the general price level change. Constant dollar restatement is intended only to make the measurement unit used in historic-cost-based financial reporting more comparable over time.

Item (C) represents the operating income (loss) determined by restating the specified items in the traditional income statement for the current cost of those items. This requires identification of the assets consumed and specific determination of their current cost. Suppose that, at the time of its sale, the inventory in the previous example was determined to have a current cost of $1,200. If the selling price of the inventory is $1,500, income would be measured at $300.

The use of current cost represents a departure from the use of historic cost in financial reporting. The original transaction price is no longer relevant; instead, it is the physical object or attribute that is relevant. The restatement is based on the current cost of acquiring the same service potential as was embodied by the asset owned. Of course, as in this example, current cost and replacement cost may be the same. It is in costing property, plant, and equipment that differences are likely to occur.

Item (D) discloses the net monetary gain or loss arising from holding monetary assets and liabilities during a period of general inflation. In this example, the amount reported represents a gain from a decline in the purchasing power of dollars required to pay a net "debtor" position. This arises when a company has an excess of monetary liabilities over monetary assets. The amount reported for this item is not included in determining the operating income under either form of restatement.

Monetary items are those that, by their nature, already are stated in current dollars and, therefore, require no restatement. Examples are cash and accounts receivable, accounts payable, and long-term obligations payable in a fixed sum. The rationale for the disclosure of net monetary gain or loss is that a company loses (gains) purchasing power from holding monetary assets

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(liabilities) during a period when the general price level is rising.

Item (E) discloses the increase or decrease in the current cost amounts of inventory and property, plant, and equipment. The change in the current cost is represented by the difference between the measures of these assets at their "entry dates" and "exit dates" for the year. Entry date corresponds to the beginning of the year or the date of acquisition, whichever is applicable; an analogous definition applies to exit dates. The information contained in this disclosure is synonymous with the more widely used term "holding gains or losses." Holding gains and losses also are excluded from the computation of net operating income.

Item (F) contains the current cost of those assets for which restatement is required on a current-cost basis. For inventories, this means current cost or recoverable amount, if lower. Similarly, property, plant, and equipment is measured at current cost or lower recoverable amount of the assets' remaining service potential.

Critics have charged that requiring two types of disclosures under Statement 33 will result in confusion. But it is because of lack of consensus among financial statement users that Statement 33 deals with the issue of changing prices in two ways. The measurement and reporting of the effect of general inflation (the constant dollar restatement) on the purchasing power of the money invested in the enterprise by its owners (either directly or by forgoing distributions of earnings) is desired by some financial statement users. Their rationale is that "earnings" have not accrued to a firm unless the purchasing power of the invested capital has been maintained. This is a response to the belief that conventional accounting measurements have failed to capture the erosion of business profits and invested capital that has been caused by inflation.

Advocates of the second approach, the use of current costs in financial reporting, do not disagree with the rationale offered for revising the traditional financial statements. However, it is their belief that inflation affects different enterprises in different ways, and utilizing an index of general inflation does not provide adequate information about its effects on a specific business. While the current cost model also is based on the notion of maintaining the capital of a business, "capital" is viewed as the operating capacity of the firm. It is the current cost required to purchase or produce the specific goods that is believed to be relevant in measuring business income and investment. They point out that changes in capital investment, such as a reduction in operating capacity, could occur without showing up in the financial statements prepared under the constant dollar model.

Critics also contend that the failure to require a comprehensive restatement of all financial statements under either constant dollar or current cost information reduces the usefulness of the information. Some believe that purchasing power gains and losses arising from general inflation are a very real element of operating income and should not be excluded. Similar comments are made relating to holding gains and losses under the current cost approach. Other practical flaws have been identified.

In preparing Statement 33, the FASB indicated its awareness of the potential impact of the statement on economic policy objectives. Their deliberations related directly to an important national economy policy issue, that of the measurement of capital formation and its corollary, productivity. The constant dollar model is based on the notion of maintaining purchasing power of invested capital, while the current cost model is based on maintaining operating capacity. Since the statement reflects both views on the issue of how to report the effects of changing prices, the information presented does provide an opportunity for experimentation and study of the usefulness of the two types of information.

The phenomenon of changing prices is worldwide. Proposals for both price-level reporting and current-value reporting are undergoing development and testing in other countries. Preparers and users of financial reports have not yet reached a consensus on the general, practical usefulness of either form of information. It seems unlikely that a consensus can be reached until further experience has been gained with the use of both types of information in a systematic, practical way. The requirements of Statement 33 will be the subject of review by the FASB on an ongoing basis. Changes will be made as evidence is accumulated both here and in other countries.

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Condominium Conversions

ROGER E. CANNADAY AND ANDREA J. HEUSON

The conversion of rental housing units to the condominium form of ownership is an increasingly controversial topic at all levels of government. At the federal level, one congressman recently proposed a three-year nationwide moratorium on condo conversions and establishment of a presidential commission to study the issue. At the state level, in Illinois a bill was recently introduced that would require 15 percent of the units in a building converted to condominum to be reserved as rental apartments. More recently, Illinois created the Joint Legislative Condominium Study Commission which is currently studying the issue. At the local level, the city of Evanston imposed a moratorium on condo conversions from July 1978 until March 1979 (when a new condominium ordinance went into effect) and the city of Chicago declared a 40-day moratorium on condo conversions in March 1979. The Chicago moratorium was subsequently declared unconstitutional by a US district court judge, although temporary moratoriums in other US cities have passed court tests.

Why have condominium conversions led to calls for such drastic measures as moratoriums? Proponents and opponents of such measures often lack objective evidence to support their positions and sometimes resort to emotional appeals. The emotional aspects of the issue are perhaps best illustrated by the term "condomania" that has been coined in the popular press.

Our purpose is to summarize the current information on condominium conversions at the national, state, and local levels and to examine two contrasting views, conversions as a problem versus conversions as a solution to problems. Background on the nature and history of the condominium form of ownership is presented first. Next, the nature and extent of condominium conversions are examined. Then, existing and proposed legislation and the economic rationale related to condo conversions are described. Next, the view of conversions as a problem is examined. Finally, the view of conversions as a solution to problems is presented.

Roger E. Cannaday is assistant professor of finance at the University of Illinois, Urbana-Champaign; Andrea J. Heuson is a graduate student in the Finance Department there.

Nature of Condominium Form of Ownership

Although most condominium conversions are multistory residential properties, the term condominium refers to a particular ownership type, not a structural or property type. While the popular image of condominiums may conjure up visions of highrise or townhouse types of structures, the condominium form of ownership may apply to any type of multifamily structure and occasionally even to detached single-family structures. Further, this form of ownership is not restricted to residential units, but may be used for nonresidential types of properties such as retail, office, and industrial structures.

Of Latin origin, the word condominium essentially means to have control (dominium) over a certain real property in common with (con) one or more other persons. Modern usage refers to individual ownership of individual units and common ownership of common elements. The boundaries of individual units are usually the inside walls, floors, and ceilings. Common elements include the land; improvements such as parking lots, tennis courts, and swimming pools; and areas or components of the building(s) not included in individual units such as hallways, elevators, foundation, roof, and common support systems. Generally, individuals have a fee simple interest (the interest which gives the fullest ownership rights) in their individual units and a tenancy in common interest in the common elements. The interest in the common elements is usually a percentage determined by the ratio that the value of the individual unit bears to the value of the entire property.

The Anatomy of Recent Recessions *By Paul B. Trescott* / *Page 9*

To establish legally the condominium form of ownership, the owner(s) of a given property must submit documents which conform with appropriate state law for public recording. In Illinois, an owner (developer/converter) who has fee simple title files a declaration of condominium along with a plat of survey and bylaws for the condominium association with the office of the county recorder of deeds. The declaration must contain a legal description of the parcel and each unit, and the percentage of ownership interest in the common elements allocated to each unit. The declaration may also contain any other provisions which are deemed appropriate to promote and preserve the concurrent ownership aspects of the venture, and to provide a mechanism for enforcement of the declaration.

Alternatives to the condominium form of home ownership include traditional single-family home ownership and the cooperative. The condominium and cooperative differ in many important respects. The condominium owner has a fee simple interest in his individual unit and has an undivided interest with other unit owners in the common elements. Separate mortgage financing may be arranged by each condominium owner and each sales transaction requires a separate deed along with all the other procedures and documentation required for any sale of real property. In contrast, the owner of a cooperative is most commonly a corporation whose stockholders are the building's tenants. Each tenant owns stock in the corporation and has a leasehold interest in his individual unit, as provided by a proprietary lease (a type of lease that confers rights essentially equivalent to ownership) agreement between the corporation and the tenant-stockholder. The corporation arranges one mortgage to finance the entire cooperative project and there is only one deed. If the tenant-stockholder wants to sell his interest, all he has to do is to sell his stock in the corporation; no sale of real property is involved.

Though it may not be possible to differentiate a condominium complex and a cooperative complex (or a rental apartment complex) on the basis of physical appearance, there are important legal distinctions with economic implications. However, both the cooperative and condominium forms of ownership allow the individual certain tax advantages of home ownership, namely, deductibility of property taxes and the interest portion of mortgage expenses. This is in contrast to those of tenants of traditional rental apartments who are not allowed to deduct a proportional share of property taxes and mortgage interest expense paid by the apartment owner.

History of Condominiums

While the condominium form of ownership has only recently become popular in the United States, it is by no means a new concept. Babylonian documents dating as far back as 2000 B.C. record the sale of the first floor of a house while the owner retained title to the second floor. Condominium ownership was common in Western Europe during the Middle Ages, largely because of a space scarcity within walled cities, leading to the necessity of defining three-dimensional property.

Modern condominium ownership gained momentum in Europe after World War I and again after World War II. Condominiums have become the predominant form of ownership for housing in much of Europe and South America. In the United States, the cooperative form of ownership became popular after World War II and remained the most popular form of joint ownership through the 1960s, particularly in large cities such as New York and Chicago.

The earliest known condominium in the United States was established in New York in 1947. A dozen veterans wanted to purchase an apartment house, using a Veterans Administration (VA) mortgage. However, VA mortgage financing was only permitted on the basis of individual ownership. It was then determined that New York law permitted an individual to own air space, thereby allowing legal delineation of a three-dimensional chunk of that air space. Consequently, the Veterans Administration was persuaded to guarantee a separate mortgage for each of the veterans.

Condominiums in the United States were formally recognized as an ownership type in 1961 when Congress passed legislation authorizing the Federal Housing Administration (FHA) to extend mortgage insurance to loans on condominium units under Section 234 (c) of the National Housing Act. The impetus for this legislation came from Puerto Rico which had passed enabling legislation for condominiums in 1958 and subsequently pressured Congress to find a way to permit FHA financing.

The 1961 federal legislation in turn provided the impetus for states to enact condominium-enabling legislation. By 1969, every state had enacted such legislation, starting with Hawaii in 1961 and ending with Vermont in 1969. The Illinois Condominium Property Act was passed in 1963 and was amended in 1965, 1972, and 1977. The first midwestern condominium development, Fountain View, consisting of two three-story apartment buildings, was marketed in Chicago just prior to enactment of Illinois's Condominium Act. As in New York and many other states, the condominium form of ownership was legal in Illinois prior to the Condominium Act on the basis of the legal recognition of individual ownership of air rights. However, it was not until after specific

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recognition of the condominium form by state law that its use became popular.

Condominium Conversion Activity

Condominium units are created through the construction of new units, the conversion of existing residential rental units, the conversion of other forms of residential ownership (for example, cooperatives), or the conversion of other types of property (for example, industrial, office, retail, and so on). The focus of this paper is on the conversion of existing residential rental units because this has been the most controversial method of creating condominium units.

Nationwide, the number of conversions increased steadily throughout the 1970s. A recent study of the conversion phenomenon by the Department of Housing and Urban Development (HUD) entitled *The Conversion of Rental Housing to Condominiums and Cooperatives* estimates that 366,000 residential rental units were converted to condominiums (348,000) or cooperatives (18,000) during the decade, with very few conversions prior to 1970. Of these units, only 86,000 (23 percent) were converted during the period from 1970 to 1975. During the next four years, 280,000 units were converted with dramatic increases occurring annually. The study also shows that conversions are primarily a regional phenomenon; 76 percent have taken place in the 37 largest Standard Metropolitan Statistical Areas (SMSAs) and 59 percent have occurred in just 12 of these SMSAs. The Chicago SMSA has more conversions than any other SMSA, accounting for approximately 20 percent of the nation's total. The Washington, D.C. SMSA is a distant second, accounting for 11 percent of the total. In the 37 largest SMSAs, each having one million or more residents, conversions were about evenly split between central cities and suburban areas.

No data are available on the number of condominium conversions in the State of Illinois, but the major share of such conversions have occurred in the city of Chicago and surrounding suburbs. In July 1979, Michael Young and others of Shlaes and Company, published a study entitled *Condominium Conversions in Chicago: Facts and Issues*. This study found that as of December 1978, there were approximately 36,000 condominium units in the city of Chicago. Of these, at least 6,000 units were constructed as condominiums. In 1979, 7,908 units were scheduled for conversion. Therefore, there were approximately 38,000 conversion units in the city as of December 1979. This represents 3.6 percent of the city's total housing units and 5.7 percent of its rental stock. The Shlaes study noted that estimates in the popular press of the total number of conversions have ranged from 30,000 to 100,000 units. This may reflect confusion in distinguishing between the city of Chicago and the Chicago SMSA which includes all of Cook County plus several surrounding counties. The recent HUD study estimates that there have been a total of approximately 70,000 units converted in the Chicago SMSA, with about half of these occurring in the city of Chicago. This is reasonably consistent with the Shlaes study estimate for the city of Chicago.

Conversion is a localized phenomenon within the city of Chicago. The Shlaes study estimates that, since 1976, 80 percent or more of Chicago's conversions have occurred in two townships, Lakeview and Near North. This area encompasses the luxury high-rises of the lakefront and Chicago's Gold Coast. However, conversion has recently spread to neighborhoods immediately adjacent to those on the lakefront. The chart on page 5 shows the distribution of condo conversions in the city of Chicago for the period January 1977 to December 1979.

Existing and Suggested Legislation

At the federal level, there is currently no legislation specifically directed to the regulation of condominium conversions. However, programmatic actions taken by institutions in the federally established secondary mortgage market have certain regulatory effects. For example, underwriting standards set by FNMA and FHLMC provide certain protections to buyers of converted units.

Numerous proposals for federal regulations of condominium conversions have been introduced in the Congress in the past five years. These include the previously mentioned proposal for a three-year nationwide moratorium on conversions. To date, all of these proposals have been defeated. Many of the opponents of such legislation (in both the Senate and the House) have argued that regulation of condo conversions is best left to the states and municipalities most affected.

Almost half of the states have legislated some form of protection for tenants and buyers of converted condominiums. The most frequent protections for tenants are requirements for notice of conversion or lease extensions, and rights to purchase units in a converted building. A number of states have enacted measures to protect condominium buyers, usually in the form of requiring full disclosure of the legal, financial, and physical condition of the project. Several states provide special measures to protect buyers of converted units. In addition, a few states have passed measures to assure a given level of rental stock, to preserve low- and moderate-income housing, and/or to provide special considerations for certain classes of tenants, such as the elderly, handicapped, or families with children.

There is great variation in specific provisions of state legislation related to condo conversions. However, there is a move to standardize state laws on the basis of the Uniform Condominium Act drafted by the National Conference of Commissioners on Uniform Laws and recently approved by the American Bar Association. Several states have this model act under active consideration and two states, West Virginia and Minnesota, enacted it earlier this year.

In the State of Illinois, legislation was recently passed which requires anyone converting rental apartments into condominium units to offer tenants the first chance to buy any unit being converted. The offer of sale and a list of prices for all units must be in writing and good for at least 30 days. Additional provisions are being studied by the Joint Legislative Condominium Study Commission including the possibility of enacting the Uniform Condominium Act.

In the city of Chicago, a city council subcommittee is looking into proposed changes to the existing condominium ordinance, which has been in existence just over 2½ years. The current ordinance requires that tenants of rental apartments being converted to condominium units be given 120 days (180 days if the tenant is over 65 or deaf or blind or unable to walk) after notification of the conversion before having to move. Tenants must also be given the opportunity to buy their converted apartment before it is offered to the general public.

The recent HUD study found that fewer than one in five of the local jurisdictions experiencing conversions have passed any regulatory ordinance. The study also reports that three of every four local chief executives surveyed prefer that neither the state nor the federal government act either to encourage or to discourage conversion. Over 60 percent also said that local governments should avoid such actions. Of those who do see a role for government, a somewhat larger proportion prefers actions that would encourage rather than discourage conversions.

Economic Rationale for Condominium Conversions

The economic rationale for condominium conversions can be approached from both the supply and demand sides. On the supply side, the issue is the profitability of owning rental apartments relative to the profitability of selling the apartments, either directly to the ultimate condominium unit owner or to a converter. On the demand side, and closely related to the profitability question, is the issue of the relative strength of the demand for rental units versus the demand for ownership units, in particular condominium units.

On the supply side, profitability is a function of cash flows related to rental income, operating expenses, mortgage payments, and income taxes, and the net proceeds that could be realized upon sale of the property. In examining the cash flows, it is not sufficient to note that increases in rent are not keeping up with increases in operating expenses. Tax considerations and expectations of appreciation in value may play a major role. If the owner has income from other sources and/or expects rapid appreciation in value, a negative before-tax cash flow on rental apartments may be perfectly acceptable. This is especially the case if losses are merely on paper due to depreciation deductions allowed by the tax laws. A negative after-tax cash flow might even be acceptable for certain investors (with sufficient financial resources to continue to invest in a rental property) if expected appreciation in value is enough to offset the negative cash flows. The key question may become not so much whether or not to sell, but the timing and nature of the sale.

Regarding the timing of the sale, the Internal Revenue Code contains certain provisions that create a disincentive to hold rental property over long periods of time. Current tax laws allow apartment owners to use accelerated depreciation methods. The tax shelter advantages of accelerated depreciation diminish as the property ages. Likewise, the interest expense portion of typical mortgage payments, another tax-deductible item, decreases over time. As these two key tax-deductible items decrease, there is greater and greater incentive to sell the property.

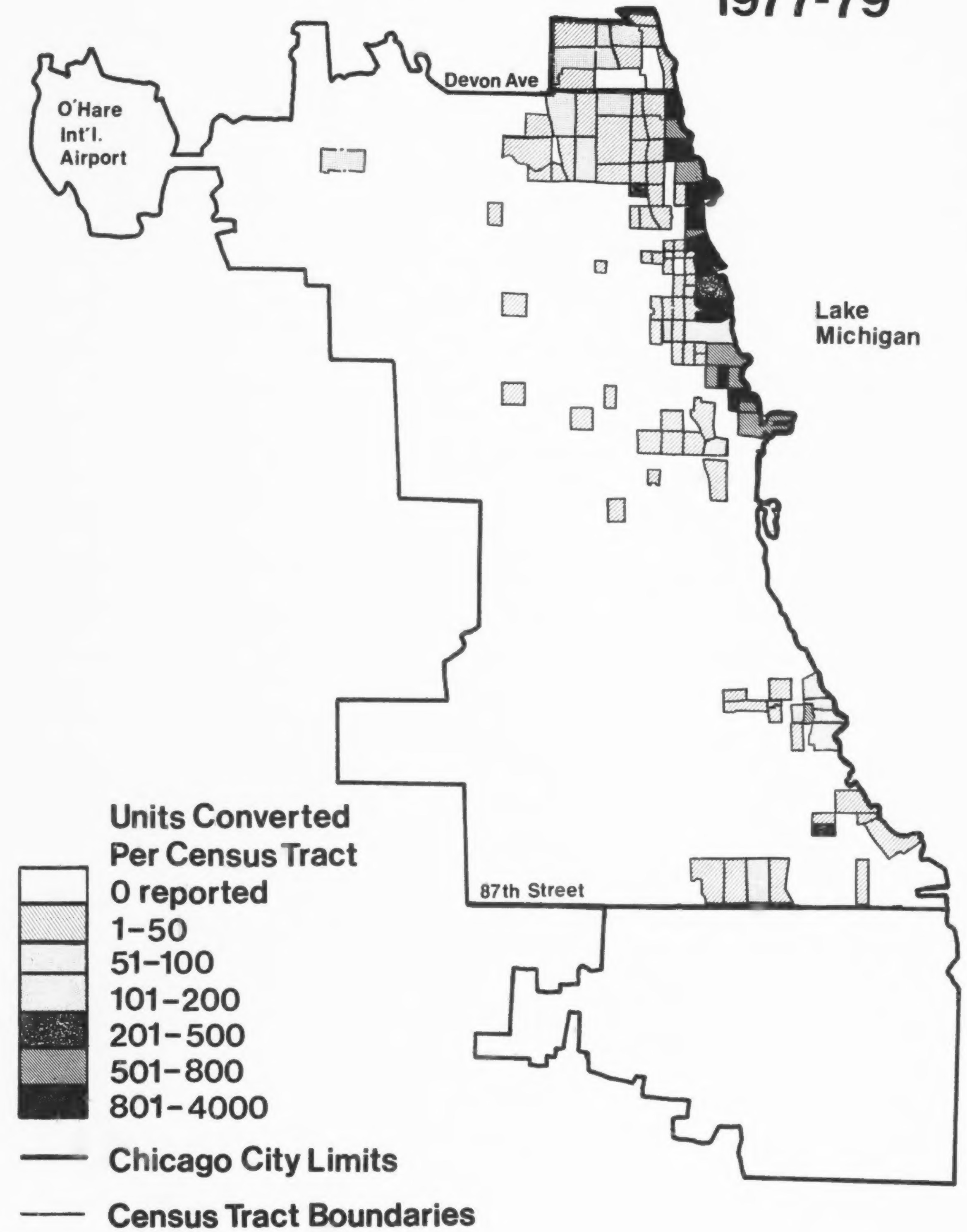
Regarding the nature of the sale of the property, the apartment owner has a choice between two major options. He may undertake the conversion process himself and sell the individual units as condominiums. Alternatively, he may sell the entire property, as rental units, to a converter who will undertake the conversion process. In most cases, the second option is preferred, since gain from the sale of individual units is taxed as ordinary income while gain from the sale of the entire property may be taxed as a capital gain if certain conditions are met.

The conversion phenomenon could not take place at current magnitudes successfully, if a demand for the units did not exist. The United States is changing from a nation of renters to a nation of homeowners. Only 43.6 percent of the country's total housing units were owner-occupied in 1940, compared with 64.8 percent by 1977. Much of the conversion activity is taking place in areas where the percentage of ownership is less than the national average. This is true, for example, in the city of Chicago, a national leader in conversion activity. Demand for condominium units has increased rapidly for several reasons, including (1) demographic trends, (2) perceived economic benefits related to inflation and federal income tax policies, (3) the combination of advantages of home ownership (as for single-family detached units) with the attractions of a lifestyle offered by multifamily units, and (4) the search for investment opportunities.

Certain demographic trends are generally considered to be related to the increase in demand for condominium units. Average household size has been declining steadily for many years in the US. This is attributed to several factors, including a decline in fertility rates and an increase in divorce rates. Single-person and two-person childless households are a rapidly increasing segment of total households. This trend to smaller households has contributed to a shift in demand toward smaller housing units such as condominiums.

It is widely believed that home ownership provides certain economic benefits, especially during times of rapid inflation. The HUD study reports that about two-thirds of all buyers of converted units name economic factors as the primary reason for buying. Many view their purchase as a hedge against inflation, expecting the value of their units to appreciate more rapidly than inflation. Others cite the fact that mortgage interest and property taxes paid by a unit owner are deductible for federal tax purposes while the rent paid by a unit renter is not deductible. Therefore, although before-tax housing expenditures often rise with the purchase of a condominium (the HUD study suggests an average increase of 36 percent for tenant buyers and 62 percent for "outside" purchasers), after-tax expenditures may remain constant, or even decrease, depending upon the owner's tax bracket. During inflationary periods, increases in nominal income push individuals into higher tax brackets, even though real incomes may not increase at all, or may possibly even decrease.

Condo Conversions in Chicago, 1977-79


Devon Ave
O'Hare
Int'l.
Airport
Lake
Michigan
87th Street
Units Converted
Per Census Tract
0 reported
1-50
51-100
101-200
201-500
501-800
801-4000
Chicago City Limits
Census Tract Boundaries

Bureau of Economic and Business Research, based on data from HUD survey.

In addition to the perceived economic benefits of home ownership, most condominium developments also offer the attractions of multifamily living. Compared with single-family detached homes, the location is usually more central, offering greater accessibility to more activities. Amenities such as swimming pools, tennis courts, and other recreational facilities are available to many people who could not afford to provide them on an individual basis. Many activities required for maintenance and daily operation are handled by professionals. Condominium associations often purchase goods and services (such as cleaning and exterminating) in bulk and are thus able to obtain quantity discounts.

The investment motive is quite strong as well. Indeed, the HUD study estimates that 37 percent of the occupants in converted buildings are renters. The units are owned by the converter/developer or other investors. The HUD study estimates that a unit owner with $39,000 annual income can expect a 20 to 22 percent annual return on the investment in his unit. Tenant buyers often benefit from initial-offering discounts of 20 to 30 percent; that is, wholesale prices. Units purchased may then be later sold at retail.

Conversions As a Problem

Among the problems cited frequently by opponents of condominium conversions are the sudden displacement of tenants (particularly the elderly), high increases in rent for displaced tenants, and exacerbation of rental housing scarcity. Each of these perceived problems is addressed in turn.

An analysis of tenant displacement must take into account the fact that tenants are a mobile group — many would have moved without the conversion process. The Shlaes study estimates that, in Chicago, during the period from 1963 to 1977, some 7,500–11,250 citizens (less than 1 percent of the total housing units in the city) did not choose to buy their units and also would not have moved out in the ordinary course of events. On a national basis, HUD defines displacement as the forced acceptance of similar- or lower-quality housing at a higher cost or lower-quality housing at equal cost. The HUD study includes an estimate that 10 percent of those individuals who resided in converted buildings have been at least temporarily displaced. However, 90 percent of former residents of converted buildings responded to a HUD survey that they were satisfied with their new units and buildings. While 72 percent of former residents no longer live in their preconversion neighborhoods, 85 percent of those who did switch neighborhoods responded that the new one was as good or better than the old one. For former residents who continue to rent, the median change in total housing costs per household is an increase of 8 percent. At the extremes, 28 percent of former residents who still rent pay at least 25 percent more in housing costs, while 30 percent actually pay less.

As to the contention that condominium conversions contribute to rental housing scarcity, the HUD study states that there is no evidence that conversions are concentrated in areas with lower-than-average vacancy rates. The study estimates that on average, nationwide, every 100 units converted effectively decreases the existing rental stock, relative to demand, by only 5 units (tenants who purchase reduce the demand for rental units, outside purchasers may move from other apartments, and purchasers may offer their units as rentals). It appears that opponents of condominium conversions are mistaken if they think that conversions have substantially reduced the supply of residential rental units relative to the demand for such units.

Conversions As a Solution to Problems

Advocates of condominium conversions view the conversion phenomenon as a solution to many urban problems. Conversions revitalize central cities by recycling old buildings. Conversions stabilize neighborhoods by decreasing abandonment and other forms of owner disinvestment, such as failure to keep up with the needed repairs and maintenance. Conversions allow home ownership for a greater number of people, giving them a stake in the society and thereby reducing the number of potential rioters, vandals, and arsonists. Conversions increase the property tax base for affected jurisdictions, since the market value of the property after conversion is generally higher than it was before conversion. To the extent that conversion of multifamily rental units replaces construction of traditional single-family detached homes, more efficient land and energy use may result.

If strong advocates of conversions are guilty of "condophilia" and opponents are possessed of "condophobia," there are many others who take a middle ground and argue that things should be left to market forces. They contend that public policy should be neutral, providing neither incentives nor disincentives for conversions.

Illinois Business Indexes

Item	August 1980	July 1980	June 1980	May 1980	August 1979
Leading indicator (1969=100)	82.0	80.5	79.6	80.1	94.0
Coincident indicator (1969=100)	123.1	122.8	122.1	122.6	156.0
Employment - manufacturing (in thousands)	1,181.0	1,178.9	1,207.2	1,213.4	1,287.6
Average weekly hours - manufacturing	38.9	38.4	39.3	39.4	40.9
Weekly earnings - manufacturing	$314.70	$311.81	$314.01	$311.26	$301.87
Layoff rate - Chicago	1.0	1.3	1.6	1.6	.6
Help Wanted Advertising-Chicago (1967=100)[1]	68.0	68.0	69.0	67.0	96.0
Help Wanted Advertising-St. Louis (1967=100)[1]	54.0	52.0	56.0	58.0	78.0
Ordinary life insurance sales (in millions)	$1,406	$1,581	$1,648	$1,632	$1,511
Retail sales (in millions)	n.a.	$3,822	$3,806	$4,037	$4,042
Coal production (in thousands of tons)	5,228	4,070	5,246	5,585	5,535
Petroleum production (in thousands of barrels)	1,890	1,900	1,799	1,929	1,912
Vender performance (percent)	33.0	30.8	25.9	30.2	51.1
Building permits (in thousands)					
Residential housing units	2.63	2.85	1.70	1.15	4.54
Value of residential housing	$111,536	$107,752	$71,587	$52,525	$191,514
Value of nonresidential housing					
Industrial buildings	$19,868	$20,400	$28,095	$25,756	$39,031
Office, banks, and professional buildings	$19,332	$58,029	$34,404	$25,861	$59,559
Stores and other mercantile buildings	$13,496	$21,281	$32,622	$34,482	$27,375
Other	$34,955	$30,708	$41,004	$40,168	$111,924
Consumer price index					
North Central US	134.9	-	134.7	-	120.3
North Central/population more than 4,000,000	136.8	-	136.7	-	121.0
North Central/population 385,000 to 1,250,000	134.7	-	134.4	-	120.5
North Central/population 75,000 to 385,000	132.9	-	131.9	-	119.0
North Central/population less than 75,000	131.7	-	128.7	-	119.5
Chicago	245.2	246.8	248.2	243.1	218.6
St. Louis	-	245.0	-	241.8	-
Prices received by farmers	129	121	110	105	116
	1980:I	1979:IV	1979:III	1979:II	1979:I
Personal income (in millions)	$116,977	$114,130	$112,234	$108,287	$106,555

Sources available upon request. [1] Source: The Conference Board, *Help Wanted Advertising*, August 1980.
n.a. not available.

The following US Department of Commerce, Bureau of Economic Analysis, data are available: 1973–78 personal income data for US, Illinois, and Illinois counties; 1973–78 employment data for US, Illinois SMSAs, and Illinois counties; and 1969–77 farm income and expenditures data for US, Illinois, and Illinois counties. To obtain the data, write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Urbana, Illinois 61801. The charge is $20 for each set to cover reproduction and handling costs. Individual county pages are $1 each with a $5 minimum charge.

Comparative Economic Data for Selected Illinois Cities, August 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)		Employment (000)		Estimated work force unemployed (percent)	
	Aug. 1980	% change from Aug. 1979	Aug. 1980	% change from Aug. 1979	Aug. 1980	% change from Aug. 1979	Aug. 1980	% change from Aug. 1979	Aug. 1980	Aug. 1979
ILLINOIS	$73,470[a]	-41.8	3,524.9[a]	+2.2	$52,929[a]	+3.0	4,958.0	-3.7	8.4	4.7
NORTHERN ILLINOIS										
Chicago	$37,113	-57.8	1,667.7	+1.7	41,470	+1.7	3,127.6[b]	-2.8	8.0[b]	4.5[b]
Aurora	943	-57.5	112.1	-29.2	576	-3.7	35.8	-2.7	9.8	3.8
Elgin	1,520	-42.0	89.8	-1.5	672	+12.6	27.6	-2.8	9.2	4.2
Joliet	414	-81.4	368.4	-6.4	376	+1.4	34.3[b]	-2.6	13.1[b]	6.2[b]
Kankakee	653	-38.3	82.3[c]	+7.2	348	+54.7	36.4	-5.9	11.7	6.9
Rock Island-Moline	2,552	-25.1	141.8[d]	+10.1	1,741	+29.4	98.8[e]	-8.3	8.6[e]	3.7[e]
Rockford	4,152	+30.9	163.6	+7.7	971	-0.6	118.7[b]	-9.6	10.7[b]	4.6[b]
CENTRAL ILLINOIS										
Bloomington-Normal	3,141	-2.9	55.4	+12.4	1,057	+13.3	53.1[b]	-4.8	5.9[b]	2.6[b]
Champaign-Urbana	915	-39.0	60.4	+10.2	533	-20.3	71.6[b]	-7.0	5.7[b]	3.7[b]
Danville	1,394	-37.2	47.6	+7.7	227	-2.6	16.6	-8.8	15.4	7.7
Decatur	1,350	-30.1	135.5	+6.3	516	+1.2	52.5[b]	-4.2	11.8[b]	5.9[b]
Galesburg	461	-54.2	31.8[c]	+3.6	166	-7.3	13.7	-7.4	13.2	6.2
Peoria	1,049	-66.4	210.8	+8.2	1,501	+0.2	160.1[b]	-5.4	8.0[b]	3.8[b]
Quincy	323	-66.3	42.9	+3.4	270	+19.5	18.5	-1.1	9.9	4.8
Springfield	13,076	+183.3	137.7	+12.7	1,884	-0.4	89.5[b]	-5.1	7.2[b]	4.6[b]
SOUTHERN ILLINOIS										
East St. Louis	1,137	+643.1	26.8	+17.5	202	+4.7	21.4	-5.7	14.5	11.0
Alton	1,078	+28.5	79.5	+3.7	169	+20.7	13.4	-5.6	13.9	7.6
Belleville	1,851	+306.8	31.4	-9.3	469	+40.0	16.9	-5.6	12.8	10.0
Carbondale-Murphysboro	348	-19.0	40.0	+18.7	354	+8.6	11.1[f]	0.0	7.3[f]	5.9[f]

[a] Total for cities listed. [b] Data for Standard Metropolitan Statistical Area. [c] Includes immediately surrounding territory. [d] Includes East Moline. [e] Illinois portion of Davenport-Rock Island Moline SMSA. [f] Data for city of Carbondale.

The Anatomy of Recent Recissions

PAUL B. TRESCOTT

After being long predicted, the recession of 1980 finally materialized. Coming as it did in a highly inflationary environment, the recession raises important questions. What policy actions are appropriate to alleviate the fall in output and rise in unemployment? Will antirecession measures cast the economy back into the excess of double-digit inflation and double-digit interest rates? To what extent has the recession been brought on by the preceding inflation itself, or by measures (such as monetary restraint) undertaken to try to bring down the rate of price increases? The recession also reminds economists of some uncomfortable feelings about their own inherited wisdom. How can prices continue to rise so much when output is falling and unemployment is rising?

In what follows, some of these issues are explored by developing the following points: (1) The current recession shows much similarity to the recession of 1974–75; and (2) Both recessions need to be interpreted with a view toward the supply side of the economy (particularly the labor market) as well as the demand side.

My analysis proceeds in terms of a traditional economic approach which has enjoyed a recent revival — looking at schedules of aggregate supply of, and aggregate demand for, goods and services. Aggregate supply and demand analysis was largely initiated by John Maynard Keynes's *General Theory* (1936), but the revival has been largely at the hands of monetarists. For instance, a recent article by Keith Carlson of the Federal Reserve Bank of St. Louis applies aggregate supply-demand analysis to the economy's slowdown in 1979. ("Explaining the Economic Slowdown of 1979: A Supply and Demand Approach," FRB StL, *Review*, October 1979).

The following comments follow his views at some points, but differ on some important issues.

The aggregate demand schedule expresses the quantity of goods and services which people will buy as a (negative) function of the price level. Each aggregate demand schedule is drawn for some specific value of the quantity of money (or the quantity of the monetary base) and is constrained by that monetary variable. A rise in prices, other things equal, raises people's desired money holdings, and in the effort to increase those holdings, people will cut back on their purchases of goods and services. Thus the aggregate demand curve is downward sloping. Because of its link to the money supply, the aggregate demand schedule will tend to increase over time at a rate which is influenced by the rate of monetary growth, subject, of course, to fluctuations arising from disturbances in particular categories of expenditures such as business investment and fiscal policy. We can measure the rate of monetary growth by looking at the change in the stock of high-powered money (currency plus bank reserve deposits at the Federal Reserve), adjusted to incorporate the dollar equivalent of changes in legal reserve requirements (I denote this as HPMA). The rate of increase of aggregate demand can be measured by changes in gross national product (GNP) in current prices. Historically, changes in the ongoing growth rate of HPMA have tended, after a lag of about two quarters, to be reflected in similar changes in the ongoing rate of increase of GNP. To illustrate, between 1960-IV and 1970-II, HPMA increased at an annual average rate of 5.1 percent. GNP, expenditures measured two quarters later, grew at an average annual rate of 6.7 percent. In contrast, from 1970-II to 1979-IV, HPMA grew at an annual average rate of 8.0 percent, and GNP expenditures, beginning two quarters later but ending with 1970-IV, grew at 10 percent per year. Thus a step-up of 2.9 percent in the monetary growth rate led to a step-up of 3.3 percent in the growth rate of aggregate demand.

The impact of changes in aggregate demand on output and prices depends on the character of the aggregate supply schedule. In the Keynesian view, the aggregate supply curve is likely to be upward sloping, becoming increasingly steep as the economy approaches "full employment." The curve historically has tended to shift gradually to the right (increase) with increase in supplies of capital and labor, improvements in labor-force quality, and technological improvement. The Keynesian aggregate supply schedule depends on the level of money wages, which are treated as an exogenous force. A rise in money wages shifts the aggregate supply curve to the left; so does a rise in the price of imported petroleum.

The Keynesian view has traditionally relied on the measured rate of unemployment as an indicator of labor-market disequilibrium and, by inference, an indicator of deficiency in aggregate demand. On the assumption that "full employment" meant measured unemployment of 4 or 5 percent, many observers concluded that the economy was usually operating below "full employment."

These traditional views have come under challenge for a variety of reasons. Some monetarists have argued that, if one allows time for adjustment, the aggregate supply curve can best be viewed as vertical. That is, the amount of output supplied will, in the long run, not be a function of the general price level. In this view, money wage rates are prices which behave in a manner very similar to product prices; thus wages cannot be viewed as an exogenous or shift-variable. The conception underlying the vertical aggregate supply curve is a very old one. It reflects the idea that the economy possesses a relatively unique "real" configuration which is not substan-

Paul B. Trescott is professor of economics at Southern Illinois University. His books on monetary topics include *Money, Banking, and Economic Welfare, Financing American Enterprise,* and *Thailand's Monetary Experience.* He will be teaching at the University of Illinois this coming spring.

TABLE 1. Employment Rate and Unemployment Rate, 1950-79

Dates	Employment rate	Unemployment rate
1950-54	55.1%	4.0%
1955-59	55.2	5.0
1960-64	54.4	5.7
1965-69	55.8	3.8
1970-74	56.3	5.4
1975-79	57.3	7.0
1979 alone	59.2	5.8

Source: Economic Report of the President, 1980, p. 234. The employment rate is the ratio of civilian employment to the noninstitutional population. The unemployment rate is the ratio of unemployed to civilian labor force.

tially altered by changes in monetary conditions and the general price level. Individual prices and wages are believed to be sufficiently flexible that the economy will remain close to this unique configuration. In particular, this view is that labor markets will tend to equilibrate through wage-rate adjustments, while the Keynesian view has always stressed a failure of the labor market to adjust. We can term the vertical aggregate supply curve the LME (labor-market equilibrium) aggregate supply. Over time it tends to shift to the right with increase in the stock of capital goods, the size and quality of the labor force, and improvements in technology. Reductions in the supply of imported petroleum have shifted the curve to the left, decreasing supply.

While the LME aggregate supply curve represents a position toward which market forces will push the economy, that does not mean that we are always at the equilibrium position. The economy's output can diverge in either direction from the LME output level. That is, we can be producing *more* than the long-run LME supply schedule indicated, as well as less.

The concept of a LME aggregate supply schedule for output is closely related to the idea that there is a "natural rate of unemployment." Milton Friedman, who coined the term, identified it as the "level of unemployment which . . . is consistent with equilibrium in the structure of *real* wage rates. . . . A lower level of unemployment is an indication that there is an excess demand for labor that will produce upward pressure on real wage rates. A higher level of unemployment is an indication that there is an excess supply of labor that will produce downward pressure on real wage rates" ("The Role of Monetary Policy," *American Economic Review* (May 1968), reprinted in Gibson and Kaufman, eds., *Monetary Economics,* 1971, p. 173).

Though Friedman himself stressed the potential variability of the "natural rate," the term has an unfortunate tendency to imply both stability and desirability. In truth, the "natural rate" appears to have undergone substantial variation during the 1960s and 1970s. We need to examine this more closely in order to determine, as well as we can, when the economy is operating above its LME output — that is, when the unemployment rate is below the "natural rate."

Unemployment is measured by people's responses to survey questions, such as "Did you work last week?" and "Are you looking for work?" Because of their responses, people may be classified as unemployed who in fact are unwilling or unable to take the jobs which are available. In contrast, employment is measured transactionally — that is, the number of people who are employed can be determined from employer records. The employment rate, then, may be a more reliable measure of labor-market conditions than the unemployment rate. If we compare the cyclical behavior of the employment rate (the ratio of civilian employment to the "noninstitutional population" aged 16 and over) with the unemployment rate, they show very similar ups and downs for most of the period since the 1940s. But their average values have shown a surprising degree of divergence in the 1970s. Table 1 shows five-year averages for the employment rate and the unemployment rate since 1950. These data indicate that during the 1950s and 1960s, the trend value of the employment rate was remarkably stable in the neighborhood of 55 percent. But in the 1970s, when the unemployment rate was going up, the employment rate was also rising. In 1979, when some economists were still interpreting 5.8 percent unemployed as evidence the economy was not operating at capacity, the employment rate reached a record-breaking 59.2 percent.

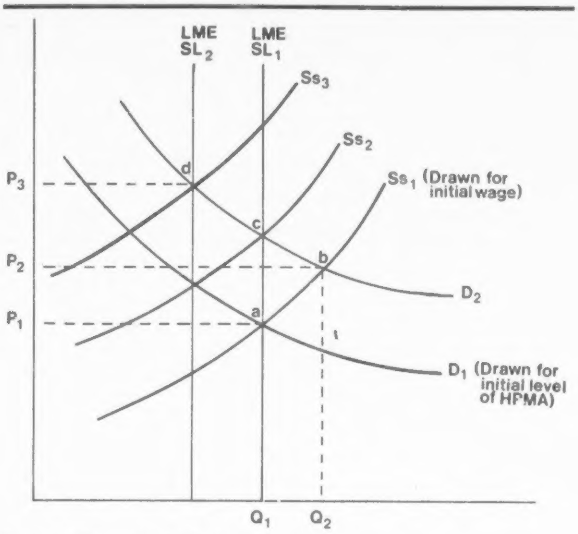
One interpretation of these developments is that there has occurred increased labor force participation by people who have always had above-average unemployment rates — teenagers, women, ethnic minorities. But to one schooled in the principle that "nature does not make leaps," the shifting relation between employment and unemployment in the 1970s requires further explanation. Four further considerations can be noted, as follows:

(1) The unemployment rate is sensitive to the draft. The periods of very low unemployment in the table are 1950–54 and 1965–69, both periods when the US was involved in Asian wars and when draft calls were heavy. Reduction in draft calls helps explain why unemployment rose in 1955–60 and 1970–75.

(2) Many people counted as unemployed are receiving transfer payments from the government. The terms of these transfer programs have become increasingly generous, diminishing the cost of unemployment and reducing the incentive to take the available jobs.

(3) In the early 1970s, the government imposed new requirements on beneficiaries of certain transfer payments, requiring that they register as unemployed. Many of them did so, although they were often not able or willing to accept available unemployment. Many were mothers with dependent children, whose child-raising responsibilities gave them a legitimate reason for not being employed. By counting such persons as in the labor force and unemployed, both labor force and unemployment are overstated. (See Kenneth W. Clarkson and Roger E. Meiners, "Government Statistics as a Guide to Economic Policy: Food Stamps and the Spurious Increase in the Unemployment Rates," *Policy Review,* Summer 1977.)

(4) Increases in the statutory minimum wage have made it increasingly difficult for low-productivity workers to find employment.


LME SL₂
LME SL₁
Ss₃
Ss₂
Ss₁ (Drawn for initial wage)
P₃
P₂
P₁
d
c
b
a
D₂
D₁ (Drawn for initial level of HPMA)
Q₁
Q₂

Bureau of Economic and Business Research

All of these labor-force matters need to be reviewed in order to answer the question, what has happened to the "natural rate" of unemployment? The answer is that it has increased, and probably to a level on the order of the 7 percent average maintained in 1975–79. If true, this has some important implications. Most important, of course, is that if the government resorts to demand stimulus in an effort to drive the measured unemployment rate below its LME level, accelerating inflation can result. This appears to have been a contributing cause of the rising inflation of the 1970s.

These labor-market considerations also have important implications for the causes of recession in the 1970s. If strong demand stimulation moves the economy to levels of output and employment which are in excess of the LME levels on the vertical aggregate supply curve, self-correcting tendencies will build up tending to move the system closer to the LME position. In particular, as Friedman noted, "real" wage rates will tend to increase (beyond productivity growth), reducing the demand for labor and pressing output downward. Such a self-correcting tendency can be averted, and the economy kept above LME output, if increases in aggregate demand become larger and larger. But of course this means accelerating inflation.

If increases in aggregate demand become smaller, or even if they are held at a constant percentage rate, a recession may occur because of the self-correcting impulses just noted.

Whatever recessionary tendencies have inhered in these labor-market relationships were aggrevated by the fact that, as Carlson has noted, the LME aggregate supply schedule itself was reduced by the sharp increases in prices of imported petroleum products. When the LME aggregate supply curve shifted to the left, the self-correcting forces tending to pull down output and employment became stronger.

The chart expresses some of these relationships in oversimplified form. The economy is assumed to begin at point *a*, which lies on both the long-run (LME) and short-run (Keynesian) aggregate supply curves. Growth in high-powered money shifts the aggregate demand curve to the right, from D_1 to D_2. Producers expand output, mainly by increasing hours worked and increasing the intensity of work for the people already on their payrolls. The economy moves to point *b*, experiencing some price increases, chiefly in agriculture and raw materials where output is inelastic. The increase in output created a disequilibrium. The higher output Q_2 could only be sustained (if at all) by increasing the real wage paid to the workers. But in fact the real wage has fallen, since money wages are unchanged and prices are higher. The amount of labor supplied will tend to fall, and money wages will tend to be bid up. These tendencies will force prices to rise more, while diminishing output. The economy will turn northwest from point *b*. A phase of apparent stagflation will set in, which is in reality a response to pressures toward labor-market equilibrium. The decline in output could be postponed if aggregate demand were raised still further, but that would accelerate the inflation.

With a higher money wage, the short-run aggregate supply curve shifts vertically to Ss_2. If there were no changes in the long-run aggregate supply schedule, the economy would head for point *c*, where the original out-

TABLE 2. Comparative Data for the Recessions of 1974-75 and 1979-80

Year and Quarter	Annual rate of change from previous year HPMA	Bank reserves	Nominal GNP	Real GNP	Unemployment	Federal funds interest rate
1973-I	8.5%	10.3%	11.6%	7.6%	5.0%	6.5%
II	8.6	8.7	10.8	5.8	4.9	7.8
III	8.7	9.1	10.9	4.7	4.8	10.6
IV	7.9	7.7	10.6	3.4	4.8	10.0
1974-I	7.8	6.6	7.9	-0.1	5.2	9.3
II	8.2	7.1	8.3	0	5.1	11.3
III	8.1	6.7	8.2	-1.5	5.5	12.1
1978-III	9.0	8.0	11.2	3.8	6.0	8.1
IV	9.1	8.2	12.6	4.7	5.8	9.6
1979-I	8.2	5.2	13.0	4.5	5.7	10.1
II	7.6	4.1	10.2	1.9	5.8	10.2
III	7.9	4.2	10.4	1.9	5.8	10.9
IV	7.8	5.2	9.5	1.0	5.9	13.6
1980-I	8.2	6.7	9.5	1.0	6.1	15.0
II	8.0	6.6	7.9	-0.8	7.5	12.7

Sources: Worksheet data from Federal Reserve Bank of St. Louis and Federal Reserve Bulletin.

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MR EDWARD KIANKA
ACQUISITIONS EDITOR
CONGRESSIONAL INFO SERV INC
7101 WISCONSIN AVE
WASHINGTON, DC 20014

put Q_1 would again be produced. Because of cumulative factors operating in the short run, there might be overshooting, with output falling temporarily below Q_1. However, the problem is aggravated by the fact that the curtailment of petroleum supply has shifted the long-run supply curve to the left. (This would also aggravate the rise of the short-run supply curve, shifting to Ss_3.) So there is strong pressure for the economy to move toward point *d*, again with the possibility of overshooting. The problem is reduced to the extent that factors making for growth and higher productivity can shift the long-run aggregate supply curve to the right.

We now have the making of an analytical framework which seems to fit pretty well the recession of 1974–75 as well as that of 1980. Relevant data are summarized in Table 2. In each case, the economy had been operating at high pressure in terms of monetary growth and the growth in aggregate demand, as measured by nominal GNP. Prices were rising rapidly. The unemployment rates were sufficiently low that we can infer that output and employment were above LME aggregate supply. In both 1973 and 1979, real GNP measured quarterly was virtually level over the year.

In each case, the Federal Reserve initiated a slowdown in the rate of growth of high-powered money, the peaks being 1973-III and 1978-IV. Measured by the annual rate of growth of HPMA, the slowdowns were both extremely mild. However, the growth rate of bank reserves fell considerably more than the growth rate of HPMA in both cases. This reflects the fact that currency continued to grow rapidly, keeping pace with rapidly rising nominal income. This configuration has a tendency to produce a "credit crunch," because of the pressure on bank reserves. Money market interest rates, such as the federal funds rate, rose to extremely high levels. These developments created the impression that monetary policy was being extremely restrictive when in fact the slowdown in growth of high-powered money was extremely mild. Pressure increased in large part because of the continued high rate of increase of nominal GNP and thus of demand for both currency and bank credit.

In each case, however, the rate of growth of nominal GNP soon began to decline. Of course, nominal GNP was still growing rapidly. But with its rate of increase slackening, the self-correcting forces depicted in the chart came into appearance, forcing output down despite rising demand. These were greatly aggravated in each case by the shock of reduced supplies and greatly increased prices of imported petroleum. These developments hit hard in 1973-IV and 1979-II. Decreased petroleum supplies reduced output and employment directly, and also aggravated price increases. The sharp price increases meant a decrease in the amount of goods and services people could afford to buy with any given amount of money. Viewed in labor-market terms, the rise in petroleum price decreased the real marginal productivity of labor, causing a decrease in the amount of employment offered at any given level of real wages. This fall in the real demand curve for labor meant that the degree of labor-market disequilibrium already in existence was substantially aggravated.

The interpretation I have presented combines a number of factors. To see the anatomy of recent recessions, one needs to look at both the demand and supply sides of the market for goods and services. Traditional economics stressed the fluctuations arising from the demand side, assuming that supply would be, in the short run, largely a passive, adapting force. In the recent recessions, however, aggregate demand has not fallen, judged by GNP in current prices. On a quarterly basis, the US has not had a decrease in aggregate demand since 1960.

The analysis also casts doubt on the advisability of resorting to strong measures of demand stimulation as a means of moving the economy back to "full employment." With the growth rate of HPMA at 8.2 percent for the year ending 1980-I, monetary policy is still a highly inflationary role. With that much monetary growth, it is unlikely that demand for goods and services will fail to grow. The slackening in growth of bank reserves has tended to be transitory, not a condition which calls for offsetting by accelerated growth of HPMA.

This analysis does not imply that measured unemployment rates on the order of 7 percent are either inevitable or desirable. But unemployment on that order is largely a microeconomic phenomenon. Experience indicates that employers will hire workers when it is profitable to do so. If the government moves again to force output and employment above their long-run equilibrium levels, as occurred in 1973 and 1979, another bout of severe inflation is in store.

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"Are We Losing Ground?" The Answer Is Yes

ILLINOIS DEPARTMENT OF AGRICULTURE, DIVISION OF NATURAL RESOURCES

A recent difference of opinion between a certain United Nations researcher Erik Eckholm and an equally certain University of Illinois economics professor Julian Simon over the need for agricultural land preservation has been brought to the attention of the IDOA Division of Natural Resources (DNR) for comment.

The DNR cannot support the claims of either work because of what we view as questionable logic applied to factual materials in each instance. Neither work seems to us to be based on correct interpretation of agricultural economics or statistical economic prediction as claimed. Instead, both mislead readers about trends in available land through manipulation of available facts.

This rebuttal by DNR researchers is an attempt to define the real sociopolitical impact of farmland conversion in Illinois with more site-specific examples and their impact for Illinois.

Analysis

The Simon article attempts to refute the Eckholm claim that, on the whole, we are losing farmland in the world. United Nations statistics are used in more philosophic than economic arguments to accomplish this end. Given the estimated credibility of the figures, this may have been a good idea. However, misinformation is still created in the Simon article when world trends of questionable validity are applied to the North American corn belt directly and Illinois specifically. This slippery slope argument is irrational and unreliable.

The application of generalities is most evident in two areas of Simon's research. First, instead of lumping together world agriculture under one philosophy, we must draw economic distinction between primitive slash-and-burn farming and high-technology agribusiness. Second, in Illinois we also have the effects of a voracious economy constantly competing for land resources. There is no room here for a comparison with subsistence level development as it governs the use of energy and land resources in poorer nations.

This position paper was prepared by the staff of the Illinois Department of Agriculture, Division of Natural Resources, in response to the article, "Are We Losing Ground?" by Julian L. Simon, which appeared in our April 1980 issue.

The inappropriate comparisons give the Simon article the dialectics needed to state his opinions. Hopefully, this report will explicitly state DNR's opinions for analysis in a more straightforward manner. If we can identify and solve our own problems in this area, then we can justify discussion of its effects on world trends. However, the cart cannot come before the horse.

The 100,000-Acre Illinois Conversion Figure

The Soil Conservation Service (SCS) has used agricultural census figures in developing its estimate of farmland conversion. This figure of 100,000 acres per year is accepted and supported by the governor of Illinois, the Illinois State Chamber of Commerce, the Rural Revitalization Committee, the Illinois Department of Agriculture, the Department of Commerce and Community Affairs, the Task Force on the Future of Illinois, and many other state and federal agencies and private groups.

The SCS used two inventories to compile the conversion figure. They were the 1967 *Conservation Needs Inventory* and the *National Resource Inventory* of 1977. In each study, agricultural lands were specifically defined by SCS. The total difference (due to development) was determined and divided by 10 to reach the initial figure of 137,826 acres per year. Both inventories are as accurate as the 4,500-field consultation operations involved. The 37,826-acre figure subtracted from the original figure takes into account the addition of pastureland

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to cropping acreage and other smaller variables in conversion that are not valued. Warren Fitzgerald, SCS state conservationist, competently defended this figure at the Governor's Conference on the Preservation of Agricultural Lands.

The Division of Natural Resources is also engaged in a cross-referencing of this figure through county tax records. So far, research has shown that this figure may be too low.

On the final report for 1980 by the Task Force on the Future of Illinois, the farmland conversion trend was also considered: Page 103 — "If present trends continue until 2000, at least 2.3 million more acres of farmland, an area equal to the size of Connecticut, will be converted to non-farm uses.

"By the year 2000, Illinois Farmland will reach its capacity for absorbing more crop acreage and, according to University of Illinois economists, even increased yields per acre will no longer be able to compensate for farmland losses."

Here are a few of the actual dollars and cents meanings of these trends as they are impacting the Illinois economy now, and in future projectives: (1) The remaining land in production in Illinois has to feed the approximately 200,000 people that the converted land previously fed. This equals the population of a city twice the size of Springfield, Illinois. This fact compounds the impact of population growth. (2) This rate of conversion is severe enough to be detrimental to Illinois agricultural exports. This damage in our balance of payments will impact our economic growth. The primary impact concerns our ability to pay for imported oil. (3) The present value of the principal crops which could be produced on the converted land is about $22 million per year. The productivity of the land in other uses would, of course, depend on the nature of the sprawl. However, real estate taxes from housing developments would come nowhere near the agricultural productivity these lands contribute to the economy.

Urbanization

For the farmer to expand under pressure of the "get-bigger-or-get-out" imperative, the purchase or leasing of additional land must be possible at rates relative to expected returns from added production. When land costs rise above the potential return from production, economics prohibits expansion.

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Director, Robert W. Resek; *Assistant to the Director,* William R. Bryan; *Editor,* Nelle Wagner; *Research Assistants,* Thomas B. Bryan, Phillip A. Cartwright, John F. Schnell, and Russell Smith.

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Urbanization is one of the major reasons for the increase in land prices. Speculation in land unrelated to its agricultural value is limiting its availability for farming. According to the US General Accounting Office, one indication of this trend is the 114 percent increase in land prices between 1972 and 1978.

Other figures confirm the degree to which resource lands are being irretrievably converted or impacted by urbanization. A further analysis of the SCS national conversion figure by the National Association of Conservation Districts (NACD) concluded:

"The most permanent land use change is the shift of cropland to urban and built-up uses. About 29 million acres, most of which were either cropland or had crop production potential, were converted between 1967 and 1977 in the United States of America. In addition, about 2 million acres were converted to small water areas. The figures combined equal more than all the rural area in the State of Illinois.

"The rate of conversion to urban and built-up lands has become more rapid in the past 10 years. The 1967 data may underestimate the amount of urban land at that time, due to the fact that some areas outside incorporated cities and towns were excluded from the estimates. But the increase from an average of 1 million acres of annual conversion between 1958 and 1967 to the current average of nearly 3 million acres each year in the past decade indicates an accelerating decline of the nation's crop producing potential."

Conversion is particularly serious to the quality of farmland taken also, according to the NACD study. Historically, settlements have been located in proximity to fertile farmland, and consequently, expansion tends to take land of superior agricultural value. The more level areas with well-drained soils that make the best cropland afford the most desirable condition for industrial, residential, and commercial development. In the nation as a whole about 35 percent of the farmland converted is prime. In Illinois this figure is nearly 70 percent.

The trend is showing up in another set of statistics. The pasture-conversion-to-cropland index is higher in North America than in any other area of the world. In Illinois, where the land is very productive, this trend is surely more predominant.

According to SCS estimates, this trend, among others, has caused our state and national soil erosion to surpass the levels experienced in the dust bowl days of the 1930s. More intensive row cropping on marginal land is a direct economic impact of the conversion problem growing worse as arable land grows smaller.

Land-Use Planning

The farmland preservation movement should not be viewed as a "no-growth" effort. Farmland preservation is simply one component of a *comprehensive development plan* for a region or county. The preservation effort not only protects a valuable natural resource, farmland, but it also promotes the concept of a wiser and more efficient use of land which is consumed by development.

Communities and counties can no longer afford the cost involved with uncontrolled or haphazard development. Local governments have to consider the economic impact of such development on the ever escalating cost of public services. By planning for such future growth and development, local government can encourage the use of vacant land within urbanized areas. By the use of infilling, costs of urban services can be minimized, since much of the vacant land in urban areas has access to the existing urban infrastructure. Studies have proven that utilities and services cost less with this type of planning.

For years farmland has been viewed as land which should be utilized for future development. At the same time, land for industrial development was considered as a very valuable community asset to be preserved and protected from incompatible conflicting land uses. It is being viewed as an industry and as a source of wealth to local economies and worthy of protection from encroachment by incompatible land uses.

Many specific examples can be found. DeKalb County, Illinois, has had a farmland preservation program since 1972. The program centers around a growth boundary on a land-use-plan map. It is implemented through a zoning ordinance. Land outside the growth boundary is zoned exclusively for agriculture and related uses.

In order to provide data to support its preservation effort in the courts, the county contracted with Northern Illinois University to conduct two studies, *A Guidebook For Fiscal Impact Analysis of Residential Development* and *Impacts of Rural Residential Development on Adjacent Farming Operation in DeKalb County*. The guidebook study proved that "scattershot" rural subdivisions increased costs for township road commissioners and school districts (busing). The adjacent farming study indicated that farmers adjacent to subdivisions experienced operational problems such as trespassing, crop damage, drainage, and so on. These studies will be utilized by the county as basic data in support of the preservation program.

A final aspect of DeKalb County's program is the support provided by the agricultural community. DeKalb County has many confined cattle-hog operations and a long established history of family farming operations. The farmers in the county saw the potential conflict between farming and scattered rural development. To protect their investments and future farming potential, the agricultural community publicly supported the county's farmland preservation program.

Conclusion

The argument that the United States and Illinois have an agricultural land surplus is incorrect for other reasons as well. It ignores the importance of our abundant farmland to the world. Not one developing country of the world can refute at least a partial reliance on our fertility and production in the Corn Belt.

No one will be so naive as to argue that people will be starving in the United States by the year 2000. However, if the *current* rate of conversion continued (at 100,000 acres per year) — hundreds of thousands may starve due to our possible inability to provide food exports. The callousness of this argument could hardly be palatable to the most extreme isolationists.

The ludicrous position that we should allow uncontrolled conversion of our prime farmland is closely akin to the idea that we do not have an energy crisis.

By the same token, would the people of DeKalb County, and others, have initiated preservation programs for the reason that the agricultural community alone wanted it? We think not. It was a combination of urban and rural sentiment. And it is a program that is present in many forms, and areas of our state and nation. Both farm folk and urbanites will benefit from preservation.

A view we support in this issue sums up the theme of our argument very well. It is simple. Why should we pay to replace resources which we can plan to preserve?

Rejoinder by Julian L. Simon

The comment by the Division of Natural Resources (DNC) relies heavily on the technique of unproven personal accusations — that I "mislead readers . . . through manipulation of available facts," and "questionable logic," that "misinformation is . . . created" with "trends of questionable validity," "ludicrous," and so on. Does this simply indicate that they could find no better arguments?

The central facts on which DNC relies are simply wrong. For the US as a whole, they assert that the "current average" of "the rate of conversion to urban and built-up lands [is] nearly 3 million acres each year." This is the figure disseminated by the National Agricultural Lands Study (NALS), an agency of the US Department of Agriculture, and the Council on Environmental Quality (CEQ) which is orchestrating the campaign to "preserve" agricultural land. As I stated in my original article, that statistic is grossly wrong, as is well-known at the US Department of Agriculture.

H. Thomas Frey of the USDA's Economic Research Service analyzed the changes between the last two completely published Censuses of Agriculture, 1969 and 1974, and found the total shift into urban areas plus transport uses to be .9 million acres per year, a total of 4.6 million acres for the five years. Some other agricultural land went out of use, but that was because it had "low soil fertility" and a terrain unsuited to efficient use of modern machinery, according to another ERS-USDA analysis by M. L. Cotner, M. D. Skold, and O. Krause. At the same time good new cropland is being created by draining swamps and irrigating deserts, at the rate of 1.3 million acres per year. The total acreage of farmland harvested actually increased, from 286 to 326 million acres. In brief, according to Frey, "We are in no danger of running out of farmland."

Next let us consider the case of Illinois, and the "100,000-acre Illinois Conversion Figure," which DNC makes much of, but which has no foundation in fact. Dale McLean of the Greater Wabash Regional Planning Commission gathered the facts which follow, and kindly made them available to me.

The 1978 Census of Agriculture has now been published for Illinois, though not yet for the US as a whole, so let us take it as a case example of the campaign now being actively conducted by the USDA and the CEQ through the NASL. The State Director of the USDA wrote to all county supervisors and district directors on 1 October 1979: "Irrevocable conversion to other uses is resulting in the loss of 100,000 agricultural acres every year and over two million acres since the end of World War II. . . . Secretary of Agriculture Bob Bergland recognized and responded to this urgent problem." Therefore, "It is the policy of FmHA [Farmers Home Administration] to make no loan guarantees or grants under any of its programs which could result in the loss of prime farmland."

Then in Executive Order Number 4 (22 July 1980) Governor James B. Thompson said that "the amount of Illinois land dedicated to agriculture has steadily declined at an average rate of approximately 100,000 acres per year," and he continued with wording adapted from the USDA letter. He then ordered that "It shall be the policy of the State of Illinois to protect, through the administration of its current programs and regulations, the State's prime agricultural land from irreversible conversion to uses which result in its loss as an environmental or essential food production resource."

Now the facts, as shown by the 1978 Census of Agriculture, published in June 1980: In 1978 there were 22,826,463 acres harvested, while in 1974 there were 21,517,665 acres. In other words, instead of a loss of 100,000 acres yearly, there has been a gain of 262,000 acres yearly.

Illinois surely is not an isolated example of such scaremongering about purported loss of agricultural lands, using false numbers. And this campaign can wreak great damage. In the short run it has already led to restrictive laws about land use in many states, laws that hamper economic flexibility and productivity. In the longer run, this misinformation is used to justify cessation of growth in the economy and in the population, both native and immigrant.

I have some questions to ask of DNC: (1) Is it bad if it is true, as they say, that there was a "114 percent increase in land prices between 1972 and 1978?" Inflation aside, we usually think it is a good thing if assets rise in value; (2) Who are the superior minds who will prepare and execute the "comprehensive development plan" that will lead to the "wiser and more efficient use of land" which would otherwise be "consumed" by "uncontrolled or haphazard development?" Why does the DNC think that it will make wiser social decisions than do farmers and businessmen about how to take care of, or dispose of, those persons' property? If wisdom includes, at a minimum, a thorough grasp of the facts, I see no evidence of such wisdom in the DNC. (3) What does "uncontrolled conversion of our prime farmland," an idea which DNC calls "ludicrous," have to do with an "energy crisis?" In any case, what evidence does DNC offer for the existence of a resource-caused (rather than politics-caused) energy crisis? (In a coming article in this *Review* I shall argue that indeed there is no energy crisis caused by physical shortages of oil, coal, and other energy resources.)

Two new sets of Illinois statewide personal income data from the US Department of Commerce are available: detailed components of Illinois personal income (intermediate table) 1958–79; and Illinois personal income by major source and earnings by 2-digit SIC, 1958–79. Charge is $5 for each set. The following data sets continue to be available: 1973–78 personal income data for US, Illinois, and Illinois counties; 1973–78 employment data for US, Illinois SMSAs, and Illinois counties; and 1969–77 farm income and expenditures data for US, Illinois, and Illinois counties. The charge is $20 for each set to cover reproduction and handling costs. Individual county pages are $1 each with a $5 minimum charge. To obtain the data, write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, Champaign, Illinois 61820.

Comparative Economic Data for Selected Illinois Cities, September 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)		Employment (000)		Estimated work force unemployed (percent)	
	Sept. 1980	% change from Sept. 1979	Sept. 1980	% change from Sept. 1979	Sept. 1980	% change from Sept. 1979	Sept. 1980	% change from Sept. 1979	Sept. 1980	Sept. 1979
ILLINOIS	$ 73,888[a]	n.a.	3,549.0[a]	+3.5	40,261[a]	-15.6	4,957.0	-1.9	8.4	5.7
NORTHERN ILLINOIS										
Chicago	$ 36,975	-59.7	1,711.0	+3.1	29,374	-18.5	3,113.2[b]	-1.3	8.1[b]	5.6[b]
Aurora	2,291	-35.9	108.7	-18.5	548	-6.8	35.7	-1.1	9.9	4.5
Elgin	436	-84.8	95.5	+6.0	546	-18.9	27.5	-1.3	9.0	5.2
Joliet	2,472	+33.3	388.8	+3.9	326	-8.4	34.1	-1.2	13.1	7.3
Kankakee	561	+30.2	80.6[c]	+6.8	256	+0.8	37.6[b]	-0.3	11.1[b]	8.5[b]
Rock Island-Moline	6,982	+6.0	124.3[d]	-0.7	1,409	+6.1	100.2[e]	-6.3	8.3[e]	4.2[e]
Rockford	4,691	-1.5	159.2	+0.1	869	-14.4	121.1[b]	-6.5	10.3[b]	5.8[b]
CENTRAL ILLINOIS										
Bloomington-Normal	1,127	-82.6	52.1	+13.0	906	-6.6	56.3[b]	-3.2	6.3[b]	2.9[b]
Champaign-Urbana	1,242	-41.6	58.4	+10.6	581	-18.9	73.4[b]	-2.2	5.5[b]	4.2[b]
Danville	872	-54.2	46.5	+4.5	206	-2.8	16.2	-7.8	15.0	10.1
Decatur	2,736	+18.0	138.5	+10.0	506	-1.4	54.6[b]	+1.8	11.2[b]	7.5[b]
Galesburg	1,592	+337.4	30.8[c]	-9.4	137	-11.0	13.2	-9.6	14.7	7.6
Peoria	3,225	-10.2	198.4	+10.3	1,488	-5.8	162.6[b]	-.20	7.7[b]	4.7[b]
Quincy	672	-38.7	44.8	+21.1	211	-16.3	17.9	-3.7	9.9	5.9
Springfield	2,745	-41.0	126.9	+8.4	1,857	-11.1	90.3[b]	+2.4	7.0[b]	5.8[b]
SOUTHERN ILLINOIS										
East St. Louis	801	+602.6	28.0	+10.2	193	+4.9	21.6	-3.6	13.9	12.7
Alton	618	+28.0	85.7	+8.8	126	-9.4	13.5	-3.7	13.0	9.7
Belleville	3,850	+470.4	32.2	+22.9	390	+0.3	17.1	-3.4	12.2	11.0
Carbondale-Murphysboro	n.a.	n.a.	38.6	+21.0	332	-7.8	11.0[f]	-4.3	6.8[f]	6.8[f]

[a] Total for cities listed. [b] Data for standard metropolitan statistical area. [c] Includes immediately surrounding territory. [d] Includes East Moline. [e] Data for Carbondale township. [f] Data for the City of Carbondale. n.a. not available

The Unemployment Rate Reconsidered

PHILLIP CARTWRIGHT

The unemployment rate is one of the most frequently cited indicators of the state of the economy. It is a measure of unused human resources. As the level of unemployment rises beyond some point there are increases in the economy's unused productive capacity; declines in the level of unemployment beyond some point may mean that productive capacity has neared its short-term limits.

The widely accepted use of the unemployment rate as a barometer of the health of the economic environment derives from willingness to suppose that changes in the level of unused resources are the mirror image of changes in used resources. As the unemployment rate rises, the inference is that the economy has weakened. Conversely, as the level of unused labor resources shrinks it is inferred that the economy has strengthened. Unfortunately, to shatter a metaphor, the mirror is cracked. The purpose of this article is to argue that the unemployment rate is not an accurate indicator of the economy's overall performance, and thus caution must be used in interpreting its meaning.

In order to consider the types of signals the unemployment rate is likely to send, the current measure is defined and broken into its component parts, focusing upon the types of changes underlying fluctuations in the rate. It appears that the unemployment rate tends to overstate the extent to which human resources are unused and the volatility of the nation's economic climate.

Background: The Unemployment Rate Defined

To provide a means for monitoring labor market conditions, the Bureau of the Census conducts monthly surveys of the population. Each month 65,000 residents of homes considered to be representative of the civilian noninstitutional population are interviewed. Members of the armed forces, inmates of institutions, and persons under the age of 16 are not included in the sample used to compute the unemployment rate, although separate statistics are collected and published for individuals 14 and 15 years of age.

Broadly speaking, an individual may be classified as belonging to one of two groups. Persons who are technically employed or unemployed are considered members of the civilian labor force, while all other persons, except for those mentioned previously as not being figured into the unemployment rate, are classified as not being a part of the labor force. Members of the armed forces are added to the civilian labor force to compute the total labor force.

The Bureau of Labor Statistics defines unemployed persons as all individuals 16 years of age and over, who did not work during the survey week, but who had made an effort to get a job during the previous four weeks and who were available for work during the week the survey was conducted. In addition, persons are included who did not work, who were available for work and were waiting to report to a new job within 30 days, or who had been laid off.

Employed persons are individuals who are at least 16 years old who did not work at all in their own businesses, professions, or on their own farms, or who worked at least 15 hours in a family-owned enterprise. Furthermore, a person is counted among the employed if that individual is not currently working, but has a job or business from which he or she is temporarily absent due to illness, weather, vacation, a labor-management dispute, or personal reasons, regardless of whether or not pay is received from an employer or the person is seeking another job.

The civilian labor force is the sum of those persons in the ranks of the employed and unemployed. By adding together those in the civilian labor force and those in the armed forces a figure is obtained for the number of individuals in the total labor force. All other persons are not in the labor force. This category includes all persons engaged in their own housework or in school. Anyone unable to work due to a long-term illness or retirement is classified as being outside the labor force, as are the voluntarily idle, seasonal workers for whom the survey work fell in an off season and who were not reported as being unemployed, and people working less than 15 hours per week without pay.

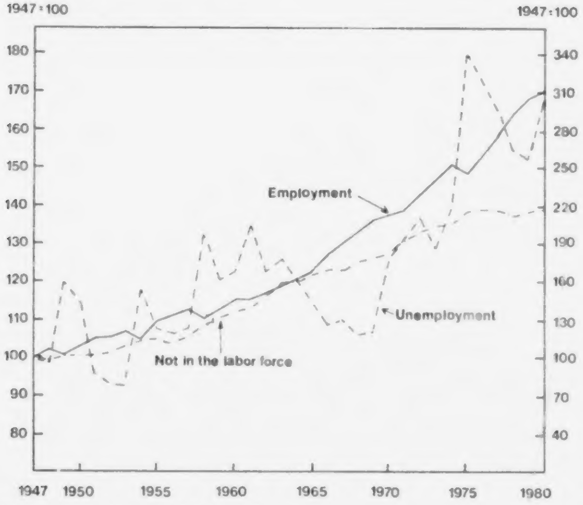
The unemployment rate is defined as the ratio of unemployment to the sum of employment and unemployment. These fractions are multiplied by 100 so that the unemployment rate can be read directly as a percentage of the total civilian labor force.

Having defined the possible classifications of individuals, a brief look at the historical behavior of these numbers is of interest. Chart 1 plots the components of the total civilian labor force for the years 1947–80. Data for 1980 have been estimated by taking a simple average of the monthly data available for the first six months of the year. It must be pointed out that some caution is required in evaluating historical data due to changes in the sampling procedure. In order to facilitate comparisons between the series, the data have been indexed with 1947 as the base year.

All three series are characterized by an upward trend over the 34-year period, although growth rates have varied widely between the components. As Chart 1 indicates, the rate of growth in employment exceeded that of the number of persons not in the labor force. Employment grew at an average annual rate of 1.3 percent over the 1947–65 period, but the growth was uneven. Reflecting the increased number of labor market participants born immediately following World War II, and the number of women who "officially" entered the labor force, employment growth turned sharply upward after the mid-1960s. From 1965 to 1980 growth averaged 2.1 percent.

Looking at the data showing the number of persons

Chart 1



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not in the labor force, the numbers reveal substantiation of the observations already made. While it is clear that the growth rate is below that of employment, during the years 1947 to 1965 the number of individuals classified as being not in the labor force grew annually at an average rate of 1.1 percent as contrasted with a rate of 0.8 percent from 1965 to 1980.

Looking briefly at the behavior of unemployment, three observations emerge. First, the extreme volatility of the data is striking (even though the data have been scaled on Chart 1 to reduce the volatility). The data show seven peaks and eight troughs over the period observed. Second, as has been characteristic of the other data, the unemployment series exhibits an upward trend over the entire period. Each cyclical peak, except for 1953, is above the preceding one. Third, and most important, the relation between changes in unemployment and employment is far more difficult to discern than one might expect, that is, the two data series are not perfectly correlated with each other.

It is this third observation which motivated the metaphor of the mirror at the outset, and which now serves to indicate the extent to which the unemployment rate might not serve as an accurate indicator of the economy's ability to absorb persons into the ranks of the employed.

The unemployment rate is plotted as the solid line in Chart 2. Changes in either of the components, which together constitute the civilian labor force, that is, employment and unemployment, induce changes in the the unemployment rate. The behavior of the unemployment rate is dominated by the unemployment series, and hence is likely to send incomplete if not wrong messages about the current state of the economic environment.

An Alternative Measure

The unemployment rate is not only misleading in the sense that it obscures demographic changes in employment and the number of persons counted as not belonging to the labor force, but casual observation of the unemployment rate is likely to leave an exaggerated sense of the economy's instability. By redefining the unemployment rate, it is hoped that the resulting alternative will more effectively capture the impacts of significant demographic changes and provide a more accurate indicator of the economy's overall health.

Recall that the unemployment rate measures the proportion of the total civilian labor force that is technically unemployed. As such it is not a measure of the number of unemployed workers relative to the available labor force or working-age population. Because the unemployment rate excludes those persons who are technically not in the labor force, it cannot show what percentage of the total available stock of human capital is unemployed. This point is critical for two reasons. First, the exclusion of some persons belonging to the working-age population results in an overstatement of the rate of unemployment, and second, the volatility of the unemployment rate is increased.

Before considering these propositions, it is reasonable to ask whether the growth in the working age or noninstitutional population has been significantly different from the growth in the civilian labor force. If the behavior of the two series has been identical, the failure of the unemployment rate to include individuals not in the labor force is not as serious an issue as I have already suggested.

The total noninstitutional population is defined as the sum of the total labor force and persons not in the labor force. Subtracting persons in the armed forces and individuals not in the labor force gives the figure for the civilian labor force. The data for the total noninstitutional population, the noninstitutional population less military personnel, and the civilian labor force are shown

Chart 2

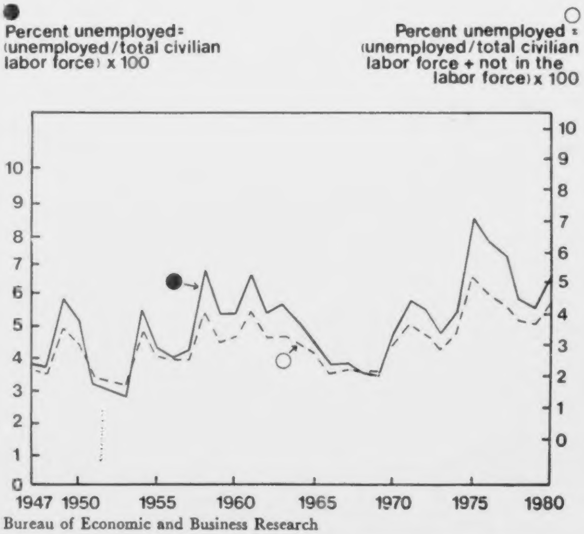

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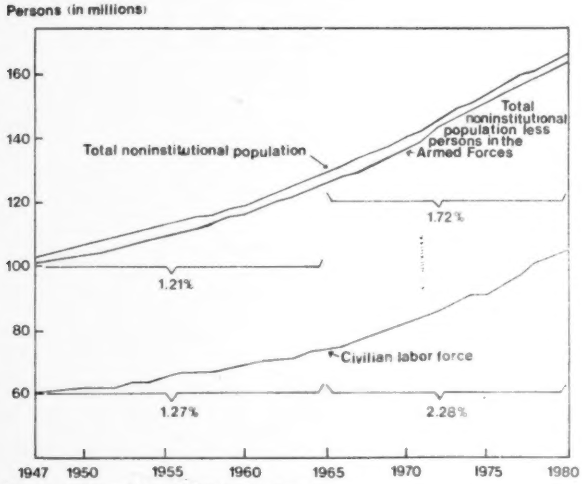
Chart 3



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in Chart 3. Annual average rates of growth are shown for the latter two series. The growth rates were very similar through 1965. In the following years, growth in the noninstitutional labor force less military personnel has fallen well below that of the civilian labor force. This observation in part reflects demographic changes in the number of persons not in the labor force discussed earlier in the article. The two series do seem to behave differently and, therefore, by incorporating those persons not in the labor force into the unemployment rate, this new measure of unemployment will exhibit significantly different behavior.

These calculations are not intended to lead to the conclusion that changes in the number of persons serving in the armed forces have no impact on the employment rate. On the contrary, changes in the number of military personnel tend to alter the size of the civilian labor force. The resulting change in the unemployment rate will depend upon the extent to which changes occur in the levels of employment and unemployment. The analysis of population shifts between the civilian labor force and the total labor force is beyond the immediate scope of this article.

Concern was expressed over the extent to which the rate of unemployment overstates the underutilization of human resources and exaggerates the instability of the economy. The evidence already given suggests that a possible solution to these problems can be achieved by redefining the unemployment rate as the ratio of unemployment to the total noninstitutional population excluding numbers of the armed forces. This measure can also be defined as the ratio of unemployment to the sum of the total civilian labor force and those not in the labor force. This ratio is plotted as the broken line in Chart 2.

When contrasted with the most frequently cited unemployment indicator published by the BLS, two significant differences emerge from the analysis. Clearly, in terms of magnitude, the alternative ratio is smaller. However, this is to be expected, given the increase in the size of the denominator of the ratio and by itself, it can be argued, this result does not warrant a change in the definition of the unemployment rate. A much more significant feature, which can be discerned from analyzing Chart 2, is the relative decline in the volatility of the proposed indicator, and this is not simply a matter of casual observation. The difference in the variances of the two measures is significant in the statistical sense.

The leading explanation for the smaller variance of the alternative measure is that the ratio is less sensitive to transitory shifts in labor market conditions. Such variations are induced by changes in the preferences or particular circumstances of individuals, which result in movements into and out of the labor force. For example, an unemployed individual may become discouraged over tight labor market conditions and drop out of the labor force "voluntarily." Hence, the suggested measure of the unemployment rate may be an improvement over the traditional measure. It not only provides a more accurate measure of the unemployment of human resources relative to the potential work force, but its lower variance suggests that the economic environment is not as unstable as the accepted measure might indicate.

Some Concluding Remarks

The issues raised in this article have received a considerable amount of attention from both private and government agencies. Although the typically cited measure of the unemployment rate is not likely to be changed in the near future, no doubt this line of research will continue. The underlying message of this article reaches beyond the behavior of a few statistics, namely, when evaluating the economy's performance we must be careful not to permit narrowly defined measures of economic activity to distort the view of reality. It is not always a simple matter to realize when one is looking into a cracked mirror.

Illinois Coal

Energy is no less crucial a national issue as we approach 1981 than it was seven years ago during the 1973 oil embargo. Prices of all energy sources have skyrocketed over this period, and we are more conscious of how much of it we use. Conservation is no longer something we should do, but don't. We are conserving. We are insulating our homes; turning down our thermostats; buying smaller, more fuel efficient cars; and making greater use of public transportation. The need to conserve is unmistakably clear. But we still must become less reliant on oil by being able to substitute other fuel sources for at least some of its uses. America's abundant coal reserves, a sizable portion of which are in Illinois, may provide a source of this substitute.

We are trying to get back to where we were in the early part of this century when this country burned mostly coal, not oil. Although consumption patterns have changed — we certainly did not drive as many cars in those days — our bountiful coal reserves could be used to supply an even greater proportion of our electricity needs than they do already. How will the Illinois coal industry fit into this picture? The answer seems to center around the degree to which society is willing to sacrifice strict environmental control for expanded coal consumption.

The US has undergone two transitions in basic energy input use. In 1850, 90 percent of America's energy inputs came from wood, but by 1910 the country had switched to using coal for 75 percent of its energy needs. In the 1940s oil and natural gas began to replace coal, which today supplies less than a quarter of this country's energy inputs. We are attempting a third transition: from oil and natural gas back to coal.

US coal reserves constitute one-fifth of the world's reserves, and on the basis of energy content are three times as great as the estimated 600 billion barrels of oil in the Middle East. Based on the present consumption rate, America's coal reserves could last for 700 years. For many of oil's uses, however, coal is not a viable substitute. But coal can substitute for oil and natural gas in the production of electricity, although it is not without its drawbacks. Electricity generation accounts for 73 percent of coal production, but coal represents only half of the fossil fuels consumed by this process. Most of the Illinois coal produced is used to generate electricity.

The Illinois Basin (Illinois, Western Kentucky, and Indiana) is richly endowed with some 230 billion tons of coal. The "in-the-ground" reserve base — coal which is considered minable under current technological and economic constraints — is estimated to be about 129 billion tons. Most of these reserves are in Illinois. Even taking into account mining losses of 50 percent for underground mining, or 15 percent for surface mining, and adding another 10 percent loss in preparation plants, the Illinois Basin's "recoverable" reserves are still about 62 billion tons. The major problem in the use of this fuel source is that these reserves have a high sulfur content.

Production and Employment Trends

Stagnation in Illinois coal production, exemplified by the closing of five mines so far this year, is a recent phenomenon. The table shows the trends in Illinois coal production and employment. The switch from wood to coal as the nation's primary energy source in the early part of the 20th century was reflected in the rapid growth in production between the periods 1895–99 and 1900–04, and then again between 1910–14 and 1915–24. In 1918 almost 90 million tons were produced by 365 mines, employing 91,000 workers. Following the negative growth of the depression years, Illinois coal rebounded to meet the war years' demand. The year 1944 saw Illinois coal production reach over 77 million tons. The subsequent period of decline, in which cheap oil, primarily imported oil, began to replace coal, resulted in Illinois coal output reaching a trough of approximately 46 million tons in the late 1950s, more in line

Production and Employment Trends in Illinois Coal: Five-Year Averages for 1890-1969, Yearly Statistics for 1970-79.

Year	Tons mined	Number of mines operated[a]	Number of employees
1890-94	16,644,895	n.a.	33,805
1895-99	19,925,798	n.a.	36,275
1900-04	30,768,766	n.a.	46,824
1905-09	44,347,142	n.a.	66,360
1910-14	55,791,836	n.a.	78,197
1915-19	73,067,594	n.a.	82,938
1920-24	73,028,434	365	96,873
1925-29	58,525,445[b]	229	70,102[b]
1930-34	42,670,542	169	51,616
1935-39	48,187,248	164	45,830
1940-44	64,745,704	144	35,304
1945-49	63,867,286	159	32,126
1950-54	49,129,284	116	23,965
1955-59	45,870,046	87	12,325
1960-64	48,556,796	69	9,244
1965-69	62,647,118	56	9,144
1970	64,884,103	64	10,214
1971	58,415,239	63	10,571
1972	65,521,394	59	11,237
1973	61,548,670	56	11,409
1974	58,072,640	55	12,467
1975	54,539,019	57	13,646
1976	58,136,144	62	14,731
1977	53,880,434	70	16,114
1978	48,744,149	71	17,861
1979	59,538,127	71	18,499

Source: State of Illinois, Department of Mines and Minerals, *1979 Annual Coal, Oil and Gas Report.*

[a] These statistics from 1969 to present are not comparable with those for prior years, as they include local mines which were not reported previously.

[b] 1925 is omitted from the calculation of these average statistics for this period because of a different reporting period.

with the early 1900s and Great Depression levels than any other period. Sustained but moderate growth followed through the next decade, resulting from the increased steam coal demand of electric utilities. The continuing rise in utility demand nationwide through most of the 1970s, when as a percentage of total consumption utilities' share rose from 56 percent in 1969 to almost 74 percent in 1978, was met by an 18 percent increase in national production. Illinois coal production stagnated during this period. The Illinois Basin supplies about 18 percent of the nation's coal output today; in 1972 the figure was 25 percent. The decline in the demand for Illinois coal can be attributed to the conflict between its high sulfur content and clean air regulations, coupled with the rapid growth of coal mining in the western states.

The influence of western coal mining on the Illinois coal industry is important for two reasons. First, there are productivity differences between the two areas. Since the passage of the 1969 Coal Mine Health and Safety Act, the productivity of America's coal mines has been declining generally. Productivity in the underground mines of Illinois declined by approximately 44 percent between 1969 and 1977. Production from these mines accounted for better than half of Illinois's total output. The decline in the state's surface mine productivity was somewhat more severe. The productivity of western surface mines, however, dropped only 6 percent. Western coal mining is predominantly the surface mining of coal fields which are new relative to those in Illinois. As such, western mining is likely to remain much more productive than Illinois mining with its high proportion of underground production and aging surface fields. The second factor in the relationship between Illinois and western coal is the latter's low sulfur content, especially relative to that of Illinois coal.

Illinois Coal and Environmental Pollution

Illinois coal is "dirty." Indeed, this is probably the biggest roadblock to the expansion of coal production in the state. If society wishes to minimize air pollution, then it needs to minimize emissions of sulfur dioxide. This requires either the burning of coal with a low sulfur content or the installation of expensive "scrubbers" — antipollution devices attached to the smokestacks of coal boilers to remove sulfur dioxide gas — by electricity-generating plants to clean coal with a high sulfur content. In order to meet emission standards without the use of scrubbing equipment, coal with a sulfur content of less than 1 percent is required. Less than one half of 1 percent of the coal in Illinois's reserve base is of this quality. Moreover, almost 88 percent of the reserve base contains more than 3 percent sulfur. Clearly, the only market for Illinois coal under current pollution standards is one which must include the cost of pollution abatement equipment.

However, an estimated 19 million tons of Illinois Basin coal burned in 1977 were not in compliance with air pollution regulations. The Clean Air Act of 1970 required all coal-burning power plants to meet specific regulations established under the State Implementation Plan (SIP). Since many plants were not able to meet these standards, temporary "variances" in the requirements were allowed. While some plants continue to operate under these variance plans, others have been forced to purchase low-sulfur coal. A switch to low-sulfur coal suppliers — which means away from Illinois coal — by electric utilities could continue.

Under the 1977 amendment to the Clean Air Act, each state is required to submit a revised SIP. All existing power plants must be in compliance with these standards by December 1982. An additional regulation — the federal New Source Performance Standards (NSPS) — released in June 1979 mandated the removal of 70 to 90 percent of the sulfur content of coal burned in plants which began construction after 18 September 1978. It also allowed for credits to utilities for scrubbing, in the order of 5 percent for 35 percent sulfur removal. Furthermore, the NSPS would require the installation of scrubbers on all units, regardless of the sulfur content of the coal used, suggesting that the relative disadvantage of Illinois coal might be eliminated. The net effect of these regulations on the viability of Illinois coal is yet unclear. Compliance goals could very well be relaxed and the regulations themselves could very well be modified in the growing "antiregulation" climate.

In the past few years, however, Illinois Basin coal has been able to remain competitive on a delivered price basis. Increasing production costs in eastern mines and rising freight rates for western coal — especially on a per energy unit basis — transported to the midwestern and south central states may allow Illinois's position as a coal producer to remain reasonably stable. The fate of Illinois coal still seems to revolve around the environment-energy tradeoff.

The Outlook

Prevailing economic conditions suggest that major disruptions in production and employment caused by massive shifts by utilities to low-sulfur western coal will not be forthcoming. A continuation of "variance" permits and a relaxation of pollution standards is not an unlikely scenario for the first half of the 1980s under the Reagan Administration's presumably different energy policy. Even at this very early date, one is still inclined to predict that under the new administration energy production will be weighted more heavily than environmental protection. If this turns out to be true, Illinois's high-sulfur coal, also valued high in energy content, and able to be transported relatively cheaply to traditional markets, may resume its historical position as a major supplier of America's energy needs.

JOHN F. SCHNELL

Illinois Business Indexes

Item	Sept. 1980	Aug. 1980	July 1980	June 1980	Sept. 1979
Leading indicator (1969=100)	85.7	83.4	81.0	79.6	93.9
Coincident indicator (1969=100)	123.6	122.7	122.6	122.0	151.0
Employment-manufacturing (in thousands)	1,181.9	1,183.4	1,178.9	1,207.2	1,285.6
Average weekly hours-manufacturing	39.9	39.3	38.4	39.3	41.5
Weekly earnings-manufacturing	$328.38	$320.30	$314.01	$311.26	$309.05
Layoff rate-Chicago	n.a.	1.0	1.3	1.6	0.4
Help wanted advertising-Chicago (1967=100)[1]	71.0	68.0	68.0	69.0	111.0
Help wanted advertising-St. Louis (1967=100)[1]	59.0	54.0	52.0	56.0	90.0
Ordinary life insurance sales (in millions)	$1,519	$1,406	$1,581	$1,648	$1,347
Retail sales (in millions)	n.a.	$3,901	$3,788	$3,806	$3,827
Coal production (in thousands of tons)	5,372	5,278	4,070	5,246	4,595
Petroleum production (in thousands of barrels)	1,795	1,855	1,593	1,799	1,781
Vendor performance (percent)	39.0	33.0	30.8	25.9	49.0
Building permits (in thousands)					
Residential housing units	3.25	2.63	2.85	1.70	4.12
Value of residential housing	$136,291	$111,536	$107,752	$71,587	$157,410
Value of nonresidential housing					
Industrial buildings	$25,582	$19,868	$20,400	$28,095	$48,620
Office, banks, and professional buildings	$30,354	$19,332	$38,029	$34,406	$41,580
Stores and other mercantile buildings	$17,893	$13,496	$21,381	$32,632	$39,093
Other	$34,720	$34,955	$30,708	$41,000	$46,929
Consumer price index					
North Central US	-	134.0	-	129.1	-
North Central/population more than 4,000,000	-	136.0	-	136.7	-
North Central/population 385,000 to 1,250,000	-	134.7	-	134.4	-
North Central/population 75,000 to 385,000	-	132.3	-	131.9	-
North Central/population less than 75,000	-	131.7	-	128.7	-
Chicago	250.1	245.3	246.8	248.7	221.1
St. Louis	252.4	-	253.0	-	222.2
Prices received by farmers	133	130	121	118	116

	1980:II	1980:I	1979:IV	1979:III	1979:II
PERSONAL INCOME IN ILLINOIS[2] (in millions of dollars)					
PERSONAL INCOME by place of residence	$118,161	$116,226	$112,317	$112,096	$109,013
TOTAL LABOR AND PROPRIETORS' INCOME by place of work					
by type					
Wage and salary disbursements	$ 74,534	$ 73,678	$ 70,954	$ 72,266	$ 70,904
Other labor income	7,976	7,672	7,287	7,376	7,137
Proprietors' income	6,798	7,298	7,603	7,294	6,951
Farm	1,401	1,695	2,026	1,878	1,806
Nonfarm	5,397	5,603	5,577	5,416	5,145
by industry					
Farm	1,826	2,110	2,419	2,259	2,166
Nonfarm	87,482	86,539	83,424	84,678	82,827
Private	76,137	75,416	72,527	73,653	72,253
Ag. serv., for., fish., and other	204	198	201	198	191
Mining	902	885	885	900	879
Construction	5,106	4,944	4,920	4,970	4,824
Manufacturing	25,481	25,602	24,271	25,741	25,526
Nondurable goods	7,685	7,578	7,740	8,055	7,921
Durable goods	17,796	18,024	16,531	17,686	17,605
Transportation and public utilities	7,175	7,180	7,058	7,028	6,779
Wholesale trade	7,484	7,292	7,086	7,188	6,966
Retail trade	8,432	8,520	8,133	7,941	7,752
Finance, insurance, and real estate	5,992	5,796	5,592	5,521	5,422
Services	15,361	15,000	14,383	14,167	13,910
Government and government enterprises	11,345	11,122	10,897	11,025	10,574
Federal, civilian	2,134	2,031	2,004	1,942	1,917
Federal, military	581	577	556	517	521
State and local	8,630	8,514	8,338	8,566	8,137
INCOME BY PLACE OF WORK					
Wage and salary disbursements	74,534	73,678	70,954	72,266	70,904
Farm	384	376	357	346	326
Ag. serv., for., fish., and other	128	123	126	124	120
Mining	692	683	686	702	687
Construction	4,314	4,093	4,026	4,058	3,946
Manufacturing	21,886	22,074	20,956	22,280	22,155
Nondurable goods	6,642	6,574	6,726	7,021	6,927
Durable goods	15,244	15,500	14,231	15,259	15,228
Transportation and public utilities	6,035	6,066	5,978	5,968	5,762
Wholesale trade	6,514	6,337	6,160	6,280	6,104
Retail trade	7,090	7,132	6,795	6,651	6,541
Finance, insurance, and real estate	4,743	4,574	4,384	4,323	4,276
Services	11,753	11,431	10,913	10,833	10,718
Government and government enterprise	10,993	10,789	10,574	10,702	10,269
Federal, civilian	2,042	1,946	1,921	1,862	1,838
Federal, military	581	577	556	517	521
State and local	8,371	8,266	8,097	8,322	7,911

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[1] Source: The Conference Board, *Help Wanted Advertising*, September 1980. [2] Bureau of Economic Analysis, *Major Sources of Personal Income in Illinois*, October 1980. n.a. not available.

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428 Commerce West
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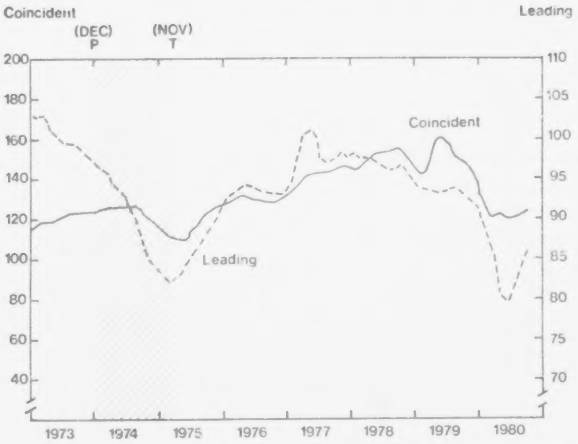
Illinois Economic Indicators



Note: *P* and *T* designate peaks and troughs of the business cycle for the US as defined by the National Bureau of Economic Research.
Bureau of Economic and Business Research

Previous signs that the Illinois economy has regained some of its strength are confirmed by the September indexes of coincident and leading economic indicators. The index of coincident economic activity climbed nearly 0.5 percent during the most recent month. Real weekly earnings in the manufacturing sector rose by 0.3 percent after recording a sharp 2.7 percent jump in August.

The leading indicator surged forward in September posting a 2.8 percent rise over the August figure. The current upturn was heavily supported by a renewal of activity in residential construction activity. Furthermore, the layoff rate in manufacturing declined 0.3 percent in August; following a similar decline during the previous month.

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1981 — New Beginnings with Old Problems

The concerns facing the economy in the early months of 1981 are the ones that have been in evidence since the early years of the preceding decade. We are concerned with rapid inflation, high and volatile interest rates, excessive unemployment, and an otherwise lackluster economy.

Last year's economic forecast in the *Illinois Business Review* was preoccupied with the prospective impact of a newly announced monetary policy. My view was that a stable and moderate growth in the money supply would contribute to a reduced rate of inflation. Alas, as 1980 came and went, that new policy turned out to resemble the proverbial "bladeless knife without a handle." Monetary actions during the year were neither moderate nor consistent.

Lagging Output Growth

The economy's output of real goods and services has changed little since the end of 1978. Real gross national product has not deviated more than 2 percent (plus or minus) from the pace reached in the fourth quarter of 1978. Thus, while there has been a great deal of speculation regarding recession and recovery, the plain fact is that not much has happened.

Table 1. Shortfall in Real GNP
(in billions of 1972 dollars)

Year	Actual Output	Potential output*	Gap
1973	1,235.0	1,235.0	0
1974	1,217.8	1,277.0	- 59.2
1975	1,202.3	1,320.4	-118.1
1976	1,271.0	1,365.3	- 94.3
1977	1,332.7	1,411.7	- 79.0
1978	1,399.2	1,459.7	- 60.5
1979	1,431.6	1,509.4	- 77.8
1980	1,421.7**	1,554.2**	-132.5**

*Estimated by increasing 1973 output by 3.4 percent in successive years.

**Average of first three quarters.

But therein lies the story of the past several years. The recovery from the 1973–75 recession aborted well before the economy had regained its longer-term growth path. For illustrative purposes we may assume that 1973 was a year during which the economy was "on" its longer-term growth path. During that year the economy experienced an unemployment rate of just under 5 percent. Over the past two decades (1959–79) real GNP has expanded at an average annual rate of 3.4 percent. Suppose we regard that rate as the growth in potential output. These assumptions are embodied in Table 1.

Note the movements in the gap between potential and actual real gross national product. The shortfall increased sharply from 1973 to 1975; then it declined from 1975 (the trough year of the 1973–75 recession) to 1978. That is, in the first three years of recovery the economy moved briskly toward its growth path. But in 1979 and 1980, the economy's performance began drifting away from its potential.

The poor performance of the economy — so evident in terms of changes in broad gauges of the economy, such as GNP — can also be seen in specific elements of activity. For example, automobile production in 1980 was the lowest in nearly two decades. The US is no longer the dominant world producer. At 6.3 million autos, production in US factories was down 25 percent from the preceding year. Not since 1961, when auto production fell to 5.5 million units, has the domestic automobile industry fared so badly. Indeed, some analysts have characterized the 1980 recession as strictly an automobile downturn.

The 1980 downturn in housing was also extreme. Housing starts were down about one-third from the preceding year, and were more than 40 percent lower than in 1978. For the year as a whole, housing starts may average about 1.3 million units — roughly the same as during the 1973–75 recession.

Steel production was adversely affected by weakness in automobiles and construction. At midyear the steel industry was operating at about 50 percent of capacity. Such an operating rate is reminiscent of the Great Depression of the 1930s. By the fall, operating rates had

Transportation Fuels Inflation *By Folke Dovring* / *Page 8*

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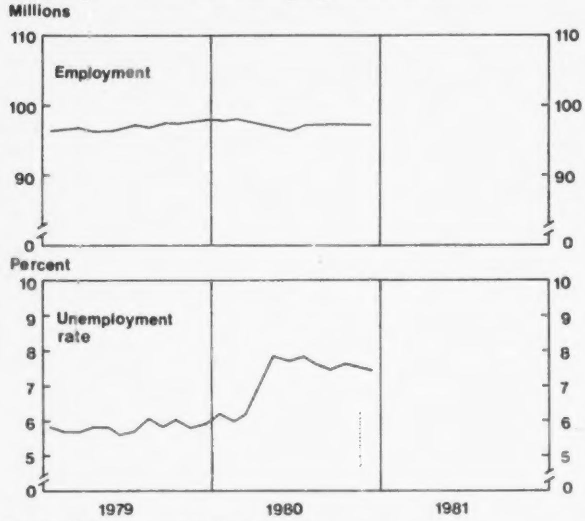
Employment and Unemployment Rate



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risen to just over 80 percent. Even so, steel officials assert that production remains unprofitable at such low levels of capacity usage.

Idle industrial capacity has been accompanied by idle labor resources. Employment rose nearly 2 percent last year. Reflecting the weakened labor markets, unemployment jumped sharply in 1980. The employment rate at the end of 1979 was just below 6 percent of the labor force; by mid-November of last year unemployment had risen to 7.5 percent.

Inflation, Interest Rates, and Monetary Policy

1980 was marked by a return to double-digit inflation and to unprecedented interest rate behavior. These are not unrelated events. They are related by three sets of factors: the first consideration relates simply to measurement. Interest costs are included in our measures of inflation. Hence interest rate increases cause price indexes to rise. A second consideration relates to the commonsense view that interest expenditures are a cost of doing business. To the extent that inflation results from cost-push factors, rising interest rates serve to accelerate inflation. Finally, reversing causation, expectations regarding prospective inflation are thought to affect the level of interest rates.

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Director, ROBERT W. RESEK; *Assistant to the Director,* WILLIAM R. BRYAN; *Editor,* NELLE WAGNER; *Research Assistants,* THOMAS B. BRYAN, PHILLIP A. CARTWRIGHT, JOHN F. SCHNELL, and RUSSELL SMITH.

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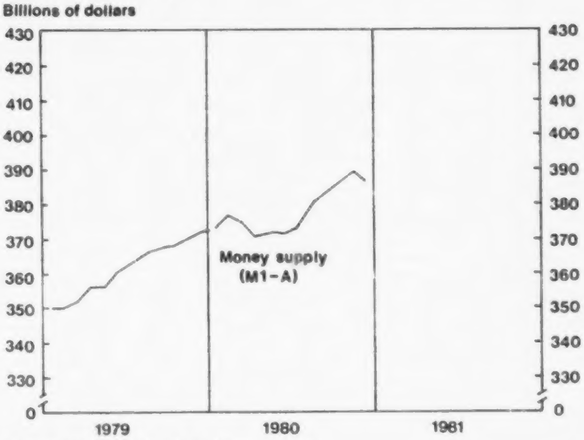
Interest rates peaked twice in 1980. As the year began it appeared that rates were edging away from highs reached in the late fall of 1979. The prime rate, the rate of interest charged by banks to major corporate borrowers, had reached 15.75 percent in November — following the Federal Reserve announcement of a change in this operating procedure. In October 1979, Paul Volcker,

Money Supply



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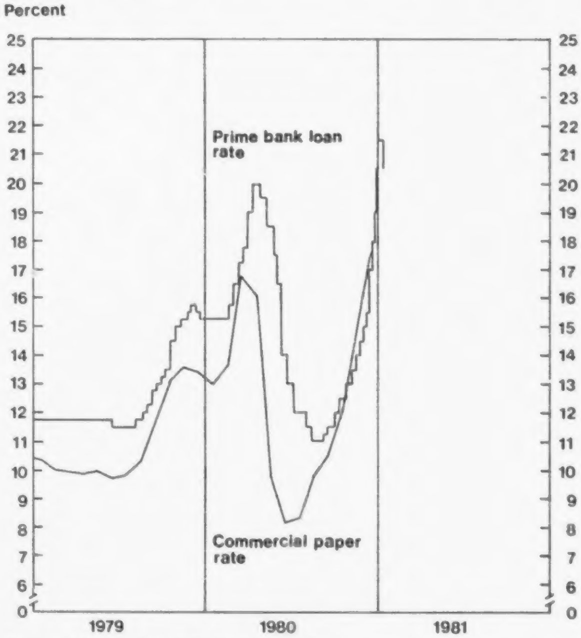
Selected Interest Rates



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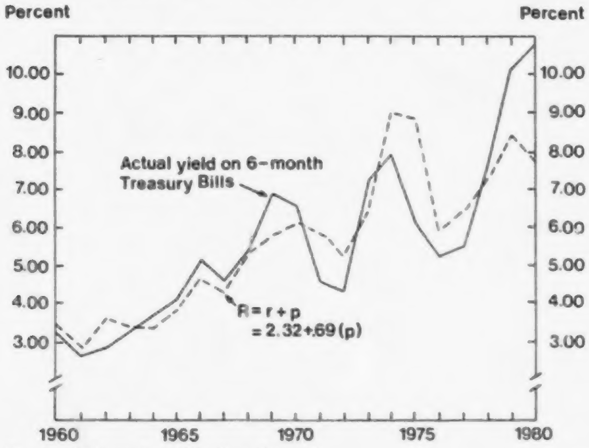
Inflation and Interest Rates



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Note: 1980 based on data for 10 months. $R^2 = .72$.

chairman of the Board of Governors of the Federal Reserve System, announced that the Fed would gear its operations toward control of money — not interest rates. But by early December rates had softened. In two steps the prime rate moved to 15.25 percent, then stabilized.

In the early spring, interest rates again surged upward. The prime rates reached 20 percent in mid-April. Like a roller coaster, rates fell sharply, with the prime rate bottoming out at 11 percent in August. Interest rates then exploded, and by mid-December the prime rate reached 21.5 percent.

As already suggested, interest rate levels are importantly affected by expectations regarding inflation. There is a view that, in the long run, lenders must receive real and positive compensation for placing their funds with borrowers. Briefly put, it is argued that the interest rate (R) consists of a real rate (r) plus an inflation premium (p). That is, $R = r + p$. In the accompanying chart, an actual interest rate for the 1960–80 period is plotted along with a hypothetical rate based on considerations just outlined. The interest rate plotted is the yield when auctioned for the 6-month Treasury bill; inflation is measured by the year-to-year percentage change in the GNP deflator.

The hypothetical interest rate — predicted on the basis of the rate of inflation — moves in the wrong direction in only four instances. In particular, note that, based on actual inflation, the predicted interest rate declined in 1980 (see chart). But actual rates rose sharply higher than in 1979. The hypothetical prediction is based on *actual* inflation, which appears to have moderated in 1980. The inflation premium (p) is an *expected* rate of inflation. It can be plausibly argued that inflationary expectations in 1980 were not lower than those in the preceding year.

There are those who insist that recent interest rate increases and decreases reflect tightening and easing of monetary policy. But money supply increases tend to be most rapid during periods when interest rates are rising. This was the case last year. It was also the case during the 1960–80 period as a whole. That is, money supply growth tends to be positively correlated with interest rates; it also tends to be positively related to inflation.

As Table 2 indicates, there is a .58 correlation between year-to-year percentage changes in the money supply (a correlation of 1.00 is perfect) and the level of interest rates. The correlation between this year's changes is the money supply and inflation is .60; the correlation between last year's changes in money and this year's inflation is .78.

Some analysts insist that the relevant money supply for gauging monetary policy is "real" money. They argue that interest rate increases are caused by declines in, or inadequate growth of, the money supply adjusted for changes in the price level. As the table indicates, the correlation between real money and interest rates is −.68.

It is interesting to note that there is essentially no relation between this year's changes in the money supply and changes in real money. This is especially strange in that the money supply is positively related to inflation and real money is negatively related. It turns out that there is a correlation of −.42 between last year's change in money and this year's change in real money. For the monetary authority to exercise effective control over real money balances, it is necessary that the inflation rate be negligible.

The Outlook

I have seldom felt more helpless in formulating a sensible forecast. At this writing, the rate of inflation continues well in excess of a double-digit pace, interest rates have begun to tumble from their record high levels, and the economy has staggered through another quarter of expansion. The world within which the US economy operates is in turmoil. The Russians are still in Afghanistan, and are poised around Poland's borders. The new Reagan Administration has just taken office.

Domestic economic developments hinge especially heavily upon noneconomic, or political factors. It is not yet clear whether the new administration will be different from the preceding one. We have heard the campaign rhetoric. It remains to be seen whether the slogans can be converted into new policies. Beyond that, it remains to be seen whether the new policies — if put in place — will work.

WILLIAM R. BRYAN

Table 2. Interest Rates, Inflation, and Money

	Interest rates	Year-to-year percent change: Inflation	Money	Real money
Interest rates	1.00	.85	.58	-.68
Inflation		1.00	.60	-.71
Money			1.00	.08
Real money				1.00

Data: Interest rates are yields on 6-month Treasury bills. Inflation is measured by the GNP deflator. Money is the M1B series. Real money is M1B divided by the deflator.

Government Regulation—How Are Commercial Banks Responding?

MICHAEL D. CAREY

Much has been made of the adverse effects of federal regulation of the private sector. Over the past five years the leaders of both major political parties have engaged in substantial rhetoric concerning the loss of productivity which seems to accompany inordinate government intervention. The warnings of Murray Wiedenbaum, Arthur Laffer, Milton Friedman, and much of the vigorous neoconservative wave have received a broad and sympathetic audience in both public and private sectors. In fact, there is significant public support for noninterventionist policies in many areas of our national life. However, when one investigates the present state of compliance with federal regulations in the banking industry, it is apparent that all of the deregulatory and noninterventionist rhetoric has done little to assuage the day-to-day burden that these requirements impose upon banks.

In their role as financial intermediaries, commercial banks inhabit a pressure-sensitive spot which is very attractive to governmental policymakers. In the past this pressure has primarily emanated from the Federal Reserve's role in determining monetary policy. However, in the last decade many laws and regulatory requirements of a social as well as of an economic nature have been thrust upon the industry. These "social policy" requirements can be assigned to two basic categories: (1) civil rights, and (2) consumer protection. Most of the consumer protection requirements deal with disclosure of terms and conditions and are the legacy of the consumer movement, whereas the civil rights requirements are outgrowths of the minority and women's rights movements of the 1960s and 1970s. And, although these societal movements have touched all industries, their collective effect upon banking has been dramatic.

This article presents a more detailed look at the actual day-to-day effects of regulatory requirements imposed upon the commercial banking industry by federal consumer and civil rights legislation. The total economic impact of these requirements is greater in a unit banking state such as Illinois which has more than 1,200 separate banks within its borders.

The Regulatory Structure

A major problem for the banks, which also affects our comprehension of the regulatory process, is that several federal agencies are deeply involved. In general, the Federal Reserve Board is the rule-making agency. It is charged with the responsibility for promulgating regulations which will carry out the intent of congressional legislation. One would then suppose that the Fed would also be involved in examining all banks to ensure compliance with the applicable requirements. However, this is the case only with respect to state member banks (state-chartered banks which are members of the Federal Reserve System). All other banks are examined by either the Federal Deposit Insurance Corporation (state nonmember) or the Office of the Comptroller of the Currency (national banks).

Michael D. Carey is Director of the Regulatory Compliance Program, Educational Development Division of the Bank Administration Institute, Park Ridge, Illinois.

It is common knowledge within both the industry and the agencies that differing standards and measurements of compliance are imposed by the various agencies. A practice which is cited as a violation by one agency may be completely overlooked by another. Also the somewhat mechanical steps which a bank must take to demonstrate compliance differ among agencies.

These differing agency approaches extend even to the type of individual chosen to perform the "consumer examination" of a bank. The Office of the Comptroller of the Currency generally uses young, idealistic recruits who are personally committed to the redress of consumer grievances, while the FDIC rotates older "commercial" examiners into the consumer area for brief periods. These commercial examiners are dedicated to the verification of the bank's financial safety and soundness and generally display little commitment to the consumer and civil rights compliance posture of the bank.

Thus, the very structure which imposes the regulations presently results in unfair and unequal enforcement of these requirements.

The Major Regulations

The regulations addressesd in this article fall into the categories of civil rights and consumer protection. Listed below are the major laws and regulations in these categories:

Civil Rights

Fair Housing Act — This is Title VIII of the Civil Rights Act of 1968 and is considered the "grandfather" of the later requirements. Generally, FHA makes it unlawful for any *lender* to discriminate in its housing-related lending activities against any person because of race, religion, national origin, or sex. The act was broadly written by Congress, and a wide variety of lending practices have been determined to be illegal under interpretation by the courts.

Equal Credit Opportunity Act — This act, implemented by Regulation B of the FRB, prohibits discrimination with respect to any credit transaction on the basis of race, color, religion, national origin, sex, marital status, age, receipt of income from public assistance-programs, and good faith exercise of any rights under the Consumer Credit Protection Act. It is particularly difficult because it both prohibits and requires a vast array of specific acts and practices associated with any credit transaction.

Home Mortgage Disclosure Act — This act is implemented by FRB Regulation C and requires that banks compile various housing loan data files and make such information available to depositors, public officials, and citizens in general to enable them to make informed decisions about the degree to which institutions are meeting the community's need for housing funds.

Community Reinvestment Act — This act is part of the Housing and Community Development Act of 1977 and is implemented by FRB Regulation BB. It attempts to go beyond HMDA to assess the degree to which a lending institution is meeting all of the credit needs of its community.

Consumer Protection

Truth-in-Lending Act — This act is part of the Consumer Credit Protection Act and is implemented by FRB Regulation Z. Its purpose is to require creditors to fully disclose credit terms so that consumers of credit can make informed decisions regarding relative costs of credit from various lending institutions.

Other consumer protection requirements of less individual significance (but of substantial cumulative effect) include the Consumer Leasing Act; Fair Credit Billing Act; Real Estate Settlement Procedures Act; Fair Credit Reporting Act; Fair Debt Collection Practices Act; Flood Disaster Protection Act; Electronic Fund Transfer Act.

The Sad History of Truth-in-Lending — The Truth-in-Lending Act, implemented by Regulation Z, provides graphic illustration of the confusion, complexity, and inefficiencies which result from well-intentioned but poorly structured consumer requirements. It is one of the many "disclosure" requirements which appear to be quite simple on the surface, but contain pitfalls when applied to a large and diverse industry.

The simple intent of T-I-L was to provide credit shoppers with the means by which to compare the cost of credit among lenders. By prohibiting the public use of "add-on" or "discount" methods of interest disclosure, the Congress hoped to provide a simple "annual percentage rate" or APR for consumers to compare. But, over the more than a decade that T-I-L has been in effect, the public has yet to benefit fully from the disclosure of APR. The reason for this lies in the numerous variables which can legally be used, or not used, in the actual calculation. One of these variables deals with how the bank counts the days to the first payment. Several methods are available, including the actual days method, the 30-day month method, the date-to-date method, counting forward — and the date-to-date method — counting backward. It is possible for each of these methods to arrive at a different count of the number of days to the first payment and therefore significantly alter APR. Other variables include use of differing computational methods, rounding or not rounding at various steps, and use of the minor irregularities rule.

The total effect of these options for APR calculations casts grave doubt on the ability of credit shoppers to make a true "apples-to-apples" cost comparison. In fact, a former Fed staffer recently calculated 12 different legally correct APRs for the same loan. The differing APRs ranged from the selective application of the various computational options already mentioned. Thus, although consumers are aware of APR disclosures and often make use of them when shopping for credit, the "apples-to-oranges" nature of APR calculation makes their usefulness often less than expected.

Emergence of the Compliance Function

The combined impact of required compliance with Truth-in-Lending and the Equal Credit Opportunity Act brought much confusion to our nation's banks by the mid-1970s. It was then that banks began to identify the need for a separate compliance responsibility center. In fact, the Office of the Comptroller of the Currency hastened this development with its recommendation that each national bank appoint a "compliance officer" to communicate with its examination staff. Over the following half-decade most banks have made such an appointment and are at least marginally equipped to respond to these requirements. However, this shift in the organizational structure is simply an outward manifestation of a more damaging general change in direction. The less obvious shift involves a partial abandonment of an entrepreneurial corporate posture in favor of defensive reactions to legislative and regulatory dictates. When caught in a web of complex and seemingly contradictory requirements, a typical response is one of corporate semiparalysis. As the bank begins to focus more seriously on regulatory compliance matters, the thrust of its raison d'etre begins to diminish and it finds itself immobilized in the same manner as the centipede who could no longer walk when he had to think of which foot to put in front of the other.

In order to alleviate some of the paralysis, many banks have reorganized their management structures to incorporate regulatory concerns into the planning, policies, and procedures of each function or division. Most have formally appointed a compliance officer or committee to ensure that the bank can, at the least, demonstrate intent to comply with the myriad requirements.

The responsibilities of the compliance function are broad and cut across divisional lines of authority. Three major areas of accountability are easily identified: (1) development, implementation, and administration of the bank's compliance program, (2) establishment and maintenance of policies, procedures, and controls for compliance, and (3) informing bank personnel and the board of directors of their responsibilities under the requirements.

Thus, in response to external forces, banks have undergone significant and rapid internal change during the past decade. The short-run effects of these changes have ranged from mild confusion to a sense of hopelessness at the apparent inability to direct sufficient resources to ensure overall compliance. In the long run, these changes will not only continue to dampen entrepreneurial spirit but will also result in higher explicit prices to bank customers as the additional cost of compliance management is passed on through the affected service.

These additional costs include those associated with the frequent revision of many bank forms as well as data-processing systems changes designed to allow compliance with rapidly changing requirements.

Survey Results

In an attempt to measure these effects, in April 1980 the Bank Administration Institute mailed a 17-question survey instrument to 849 compliance officers throughout the country. The addressees were randomly chosen from among the 7,200 (approximately) compliance officers on our records. Responses were received from 487 of those contacted; representing a 57.4 percent response rate.

The purpose of the survey was to provide a composite profile of the response of the industry to the many tasks associated with regulatory compliance. In addition, it was hoped that the survey would provide a measure of the emergence of the compliance function as a mainstream component of bank management. Also, an attempt was made to measure the dollar value of bank resources which have been committed to compliance activities. Results from the more salient questions are as follows:

Corporate Title: More than 56 percent of the respondents held a corporate title of vice-president or above, with 32 percent either assistant vice-president or first-level officer. These figures appear to hold well across bank-size categories with the exception of the under $10 million bank-asset-size category in which fully 54 percent of the respondents were president/ceo level.

Work Experience: Generally, the respondents evidenced substantial banking experience. Fully 84 percent had more than 6 years in banking, with a remarkable 26 percent exceeding 21 years. These figures hold closely across size and geographic categories.

In contrast with banking experience, most respondents had relatively little time functioning in the compliance field. One-third had one year or less compliance experience, and those with three years or less represented 74 percent of the total.

Most Difficult Tasks: By far, the most difficult task indicated by respondents was "keeping current on regulations" (90 percent).

Greatest Concern: "Consistency of regulations and forms" and "enough time to do the job" were most frequently mentioned.

Bank's Emphasis: A full 79 percent indicated that during the past year their bank's emphasis on compliance had increased.

Estimated Annual Cost: Of the categories available, more respondents chose "over $50,000" as an estimation of the annual cost of compliance activities. But, as would be expected, it was not until bank size reached the $100-250 million asset range that significant numbers began appearing in this category. (See exhibit.)

Conclusions and Recommendations

It is obvious that the banking industry continues to bear a disproportionately heavy regulations burden. Especially onerous are the civil rights and consumer protection requirements which impose significant potential liability upon the bank during the course of most transactions with consumers.

Banks have, for the most part, implemented policies and procedures which allow for systematized compliance with these requirements, but these efforts have been at great cost. These costs are both direct and indirect, with the loss of entrepreneurial corporate posture being the most significant.

Now that "technical compliance" has been achieved, it is important for the industry to focus its energies upon developing a "proactive" relationship with both legislative and regulatory arms of the federal government. This relationship should include active individual participation of bank management in the statutory and regulatory process. The following actions, if pursued widely, could ameliorate some of the existing compliance burden while simultaneously reducing future interventionist opportunity in the financial arena: establishment of "external affairs" department, when possible, to provide a more

Annual Cost to Banks of Compliance Activities

	Total assets, April 1980 (in millions of dollars)								
	All banks	Under $10	$10-25	$25-50	$50-100	$100-250	$250-500	$500-1,000	Over $1,000
Estimation of annual cost to your bank of its compliance activities	467 100.0	12 100.0	35 100.0	63 100.0	79 100.0	74 100.0	70 100.0	47 100.0	87 100.0
Under $2,500	45 9.6	2 16.7	10 28.6	17 27.0	9 11.4	4 5.4	2 2.9	0 0.0	1 1.1
$2,500 - $5,000	55 11.8	5 41.7	13 37.1	11 17.5	14 17.7	7 9.5	5 7.1	0 0.0	0 0.0
$5,000 - $10,000	83 17.8	5 41.7	6 17.1	20 31.7	24 30.4	13 17.6	9 12.9	2 4.3	4 4.6
$10,000 - $20,000	67 14.3	0 0.0	5 14.3	11 17.5	20 25.3	15 20.3	6 8.6	4 8.5	6 6.9
$20,000 - $50,000	100 21.4	0 0.0	1 2.9	4 6.3	11 13.9	23 31.1	29 41.4	16 34.0	16 18.4
Over $50,000	117 25.1	0 0.0	0 0.0	0 0.0	1 1.3	12 16.2	19 27.1	25 53.2	60 69.0

effective dialogue with public constituencies; formation of a "social policy" committee of the board of directors to develop formal policies with regard to political, social, and economic pressures; implementation of expanded communication with all segments of a bank's local community; and substantive involvement in the statutory and regulatory process.

Only through the vigorous pursuit of such measures will banks begin to regain a meaningful voice in the determination of their futures.

Transportation Fuels Inflation

FOLKE DOVRING

The power of oil prices over industrial economies has been well illustrated by recent events. The two large waves of increase in international petroleum prices, 1973–74 and 1979–80, were followed by recessions in many countries and by major surges of inflation in the US. Yet many voices in our public debate — politicians among them — dispute the role of import prices as a major source of inflation in this country. Other industrialized nations, so the reasoning goes, are dependent on imports for much more of their oil consumption than we are, and they have less inflation.

There are two important differences between countries to account for here: the foreign exchange positions, and the uses of petroleum, especially for transportation.

TABLE 1. Commercial Energy and Gasoline: Apparent Consumption Per Capita, Selected Countries and Years

Country	Energy per capita, coal equivalent (kilograms)			Gasoline per capita (kilograms)		
	1973	1975	1978	1973	1975	1978
France	4,459	3,929	4,368	301	302	326
Germany (W)	5,828	5,408	6,015	315	330	378
Japan	3,922	3,621	3,825	188	190	213
United Kingdom	5,423	4,983	5,212	299	283	298
United States	11,789	10,878	11,374	1,371	1,346	1,421
USSR	4,705	5,087	5,500	252	280	..
World	2,003	1,950	2,074	147	147	152

Sources: United Nations, Department of International Economic and Social Affairs, *World Energy Supplies 1973-78*, Statistical Papers, Series J, No. 22, Tables 4 and 16 (and earlier issues of the same publication, for data on gasoline in the USSR).

Petrodollars and Inflation

Countries such as Germany and Japan do not run foreign exchange deficits; the US does, mainly on account of oil. Hence the currencies of such countries are not under the kind of pressure that besets the American dollar. That a large foreign exchange deficit should lead to inflation is no great mystery. The American dollar was previously shielded by its role as an international reserve currency, and so a moderate foreign exchange deficit was no burden. With our current huge "petrodollar" deficits, the reserve-currency position is in some doubt and is in any event not sufficient to stave off inflationary consequences of the deficit. Large "dollar debts" reduce confidence in the dollar in international money markets and render it undervalued. This raises the dollar prices of many imported goods, which is inflationary. It cheapens American exports which is often inflationary by making such goods more scarce on the domestic market. The foreign exchange deficit also leads to increased foreign demand for domestic assets such as land, mines, factories, housing, and so on, which is also inflationary by placing upward pressure on asset prices. In the case of the US "petrodollar" debt to OPEC countries, this foreign debt by absorbing federal bonds and Treasury notes tends to neutralize some of the effects of a federal budget deficit but replaces those effects by the parallel, and similar, effects just described.

Professor Folke Dovring, a former UN official, teaches land economics and economic development in the Department of Agricultural Economics, UIUC. His research and publications include institutional economics (land reform, distribution of income and wealth), development dynamics, productivity, and natural resource economics. Recently he has written extensively on energy problems, particularly quantity problems related to investment in new energy sources.

The Uses of Oil

The uses of oil, especially in transportation, is a more complicated subject and calls for more precise data to be understood. As will be shown later, the large size of the transportation sector in the US now contributes to inflation by restricting resources for other investment.

International statistics on energy use show the US economy as one of the most energy-intensive in the world — rivaled only by the Soviet Union, but that requires comparative measurement of national product which we cannot go into here. A few selected numbers are shown in Table 1. The prevalence of high energy consumption per capita in the United States is already evident. From 1972 to 1975, energy consumption per capita fell somewhat, but recovered by 1978. Gasoline consumption showed less flexibility.

The per capita consumption figures need to be articulated through data on per capita national product in internationally comparable prices. Conventional national accounts do this too crudely when only the international exchange rates of the currencies are used for international comparisons. Recently, however, we have been given access to revised national accounts statistics for many countries, weighted by international prices of goods and services. Some of these data, and elaborations based on them, are shown in Table 2.

Despite imperfections in the data it is now evident that the US economy is by far the most energy-intensive among those for which we have comparable information. It is easy to show from historical data series that this has been so for a long time. It is noteworthy that the energy-intensive countries include those which historically were net exporters of fuel: the US, Canada, the United Kingdom, and the Soviet Union. Historical net importers,

TABLE 2
Consumption of Commercial Energy and of Gasoline, per Dollar of Gross Domestic Product (GDP), Multilateral Concept of National Product Comparisons, 1973

Country	(1) GDP per capita	(2) Energy per $, coal eq. kilogram	(3) Gasoline per $, kg	(4) Col. (3) x 1.61	(5) Col. (4) x 1.75	(6) Col. (5) as % of col. (2)	(7) Col. (2) minus col. (5)
France	$4,709	.95	.064	.103	.180	19	.77
Germany (W)	4,791	1.22	.066	.106	.185	15	1.03
Japan	3,962	.99	.047	.076	.133	13	.86
United Kingdom	3,751	1.45	.080	.129	.225	16	1.22
United States	6,192	1.90	.221	.356	.623	33	1.27

Sources: Col. (1) from Irving B. Kravis and others, *International Comparison of Real Product and Purchasing Power*, UN International Comparison Project, Phase II (Baltimore: Johns Hopkins Press, for the World Bank, 1978), Multilateral Table 4.10. Col. (2) and Col. (3) derived from Col. (1) and data in Table 1. Col. (4) brings the heat content of gasoline into approximate equivalence with that of coal (see *World Energy Supplies 1973-78*, cited in Table 1, pp. xviii-xix; gasoline by weight has 1.61 times the 7,000 calories assumed as standard in a gram of coal. Col. (5) brings in the indirect energy used by and for gasoline engines. See R. H. Williams, ed., *The Energy Conservation Papers* (Cambridge: Ballinger, 1975).

such as France and Japan, have developed much more energy-saving economic systems. Germany, once a net fuel exporter (on account of coal), was among the more energy-intensive countries still in the 1950s, but has shown a good deal of improvement since then while still exhibiting some excess energy intensity over France and Japan.

The US still has not made much progress in reducing energy use per unit of real national product, which is another way of saying that there should still be a great deal of scope for this kind of progress in this country. The contrast between the US and other countries is especially striking in Column 5 of Table 2, which shows gasoline as coal-equivalent fuel plus the "backward linkage" of indirect energy use associated with gasoline-driven vehicles. The US apparently uses one-third of all the energy in the country in and for gasoline-powered engines. The other countries in the table use proportionately about half as much, or less, of their energy budget in and for gasoline engines. The last column in Table 2 shows the ratio of energy per dollar of national product minus the part used in and for gasoline-powered engines, which is nearly all in transportation. Now the differences between countries are much reduced. The proportion between France and the US has fallen from 1:2 (in column 2) to 1:1.65; between Germany and the US from 1:1.56 to 1:1.23, and the difference between the United Kingdom and the US has almost disappeared. This is on account of gasoline-powered engines only. If diesel-powered transportation (trucks, railways, and barges) were also identified (it is harder to separate from other uses of light refined oil) the differences between the United States and other countries would be even smaller. Transportation is evidently the main cause of low efficiency (or productivity) in the use of energy in the US. Household operation may be next. Industry, agriculture, and other business are apparently closer to the efficiency standards in other countries.

Transportation Energy

Transportation, we are often told, uses about one-fourth (or, more precisely, 26 percent) of all energy in the US, or over half the oil, which sounds impressive enough. This, however, includes only the heat value of fuel used directly to propel vehicles. To extract, refine, and transport the fuels, and to manufacture, deliver, and service vehicles, about three-quarters as much energy is used as in direct propulsion fuel. This is energy of all kinds, but given the preponderance of petroleum and natural gas in the US energy budget, these scarce fuels must take the bulk also of the "backward linkage," or indirect energy quantities. Thus, when all is included, transportation in the US uses up about 45 percent of all energy consumed in the country. This must be the sector where most is wasted and where the largest gains would be obtained by pursuing increased efficiency in the use of energy.

Once again we turn to international comparisons to illustrate the weight of transportation in the energy and capital budgets of this country. Table 3 shows selected statistics of internationally comparable national product data for 1973. Parallel data for 1970 show closely similar proportions, with differences too small to be commented upon with any confidence. A second set of analyses, the "binary" tables, compares the US with other countries one by one, averaging the price weight of each item between the two countries. Detailed results are somewhat different from those of the multilateral comparisons shown in Table 3, but the main conclusions remain the same.

Table 3 shows comparably price-weighted proportions between transportation and some other items in the US and some other countries. In conventional national product accounting, the differences between countries are less striking especially as regards transportation, because people in other countries generally pay much higher gasoline taxes. In the internationally comparable prices, differences between the US and other countries in the table are much larger. The percentage of national product used for transportation in France and Germany is less than half that in the US. Among investment goods, transportation equipment also plays a larger role in the US. This points to other transportation expenditures

TABLE 3. Use of Gross Domestic Product (GDP), Multilateral Comparison Concept, Selected Items and Countries, 1973

	France	Germany (W)	Japan	United Kingdom	United States
GDP per capita	$4,709	$4,791	$3,962	$3,751	$6,192
Thereof:[a] consumption	$2,857	$2,692	$2,252	$2,618	$4,209
= % of GDP	60.7%	56.2%	56.8%	69.8%	68.0%
Of which: transportation	$ 231	$ 237	$ 90	$ 295	$ 741
= % of GDP	4.9%	4.9%	2.3%	7.9%	12.0%
Capital formation	$1,477	$1,747	$1,514	$ 756	$1,343
= % of GDP	31.3%	36.4%	38.2%	20.2%	21.7%
Of which: transportation equipment	$ 108	$ 155	$ 108	$ 115	$ 220
= % of GDP	2.3%	3.2%	2.7%	3.1%	3.6%
Government[b]	$ 375	$ 353	$ 196	$ 377	$ 640
= % of GDP	8.0%	7.4%	5.0%	10.0%	10.3%
Subtotals of percentages: transportation plus investment in vehicles	7.2%	8.1%	5.0%	11.0%	15.6%
Capital formation less transportation equipment	29.0%	33.2%	35.5%	17.1%	18.1%

Source: Kravis and others, as cited in Table 2, its Table 4.10.

[a] Household and government consumption.

[b] Government expenses for personnel and commodities.

(for capital formation and for production of goods for final consumption) as being also larger in the US than in other industrialized countries. This confirms the suggestion already made about diesel-powered transportation also being larger in the US.

Government expenses (for personnel and commodities) are also a larger proportion of national product in the US than in France, Germany, and Japan. The difference is largest in commodities, which points to defense procurements as an important reason for this difference.

Transportation and Investment

The standing complaints that the US invests proportionately less than other industrial countries comes out clearly in Table 3, for 1973. France, Germany, and Japan, in fact invested more per capita, despite somewhat lower per capita incomes. The difference is again made somewhat larger when transportation equipment is counted apart from other capital formation expenses. The shortfall of investment (minus transportation equipment) comes close to the sums of the US overloads (in comparison with the other countries) of expenses for transportation, transportation equipment, and government expenses. This was so in 1970 and 1973. Since then, the investment picture in the US has worsened even further and is generally blamed for slow increments in productivity in this country.

It is logical that transportation should have a depressing effect on capital formation, precisely when transportation costs are rising. Transportation and capital formation both draw heavily on fuel and hardware, the latter a group of energy-intensive goods. With fuel prices rising the way they have recently, the structural imbalance of an oversized transportation sector could only be made worse.

In 1972, the US imported crude petroleum at prices averaging $2.75 a barrel. In the fall of 1980, the international prices range from $30+ to $40+. In current terms, international oil prices rose by a factor of 11 to 15 in eight years. Deflated by the implicit price deflator of the US GNP, which comes to about 180 in 1980 (1972 = 100), we get a range 6 to 8 for the real increase in oil prices in those eight years — a factor of 7 on the average. This is indeed extreme; the reality of it seems hard to grasp by people who decry a national energy policy as tending to "autarky." The proportions shown here point to the transportation sector as an albatross which weights down the US economy and renders the fight against inflation a futile effort.

Transportation and Territory

The size of the transportation sector in the US is often defended as reflecting the vast size of the country. If that were the reason, this would merely make the effort at reducing transportation expenses more difficult but it would be just as necessary. Reference to size of land area includes some illusions, however. The large area and the diversity of the US means, among other things, that this continental country has much more internal than external trade. Before the oil imports took on major scope in the last decade and a half, imports and exports each were of the magnitude of 5 percent of the national product. Smaller countries regularly have larger foreign trade balances and so must meet the transportation overheads for these. Their share in international transportation is part of their energy budgets. The size of a supply area serving a national economy has little to do with the size of the national territory. How the transportation system is organized also counts for a great deal in its efficiency.

I have noted that most of the transportation fuel in the US is gasoline, most of which is used up in cars. Most of the car traffic is not across the continent but in local routines such as commuting and shopping. Here the size of the country is not to blame but rather the organization of transportation — the "traffic machine" concept on which American cities have been expanded in the decades of cheap petroleum. Most other countries are more economically organized in this respect.

The transportation system also goes a long way in feeding on itself. Of all intercity truck cargo (ton-mile

(Continued on page 12)

Comparative Economic Data for Selected Illinois Cities, November 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Postal receipts (000)		Employment (000)		Estimated work force unemployed (percent)	
	Nov. 1980	% change from Nov. 1979	Nov. 1980	% change from Nov. 1979	Nov. 1980	% change from Nov. 1979	Nov. 1980	% change from Nov. 1979	Nov. 1980	Nov. 1979
ILLINOIS	$99,445[a]	*+1.2*	3,508.2[a]	*+2.0*	$52,412[a]	*-10.3*	5,066.0	*-0.8*	*8.1*	5.5
NORTHERN ILLINOIS										
Chicago	55,839	*-20.2*	1,700.5	*+2.1*	38,673	*-15.3*	3,185.5[b]	*1.9*	*7.6*[b]	*5.1*[b]
Aurora	3,668	*+72.8*	109.0	*-17.7*	578	*-4.0*	36.5	*0.8*	*10.3*	*8.0*
Elgin	3,488	*+261.5*	90.3	*+3.6*	541	*-8.0*	28.1	*-1.1*	*8.4*	*5.0*
Joliet	1,206	*+11.5*	401.5	*+4.8*	348	*-4.7*	34.9	*-0.9*	*12.3*	*10.3*
Kankakee	406	*-45.2*	80.9[c]	*+7.2*	277	*+12.6*	38.1[b]	*-1.6*	*10.7*[b]	*7.6*[b]
Rock Island-Moline	2,935	*+57.0*	120.2[d]	*-6.2*	1,547	*+11.1*	102.6[e]	*-8.2*	*8.4*[e]	*4.2*[e]
Rockford	13,953	*+301.8*	164.4	*+3.3*	958	*-0.8*	115.9[b]	*-11.5*	*13.0*[b]	*5.6*[b]
CENTRAL ILLINOIS										
Bloomington-Normal	3,992	*+7.3*	51.6	*+12.4*	894	*+6.9*	57.7[b]	*-2.0*	*6.1*[b]	*3.3*[b]
Champaign-Urbana	1,607	*+37.5*	52.0	*-9.3*	741	*+20.9*	79.3[b]	*2.5*	*5.3*[b]	*3.8*[b]
Danville	2,635	*+33.4*	48.2	*+2.8*	213	*-9.0*	16.3	*-6.3*	*14.1*	*10.1*
Decatur	2,125	*-29.0*	133.0	*+12.5*	560	*+10.0*	55.3[b]	*1.3*	*11.0*[b]	*10.8*[b]
Galesburg	70	*-87.3*	27.8	*-12.3*	150	*0.0*	13.5	*-5.6*	*14.2*	*7.3*
Peoria	1,037	*-72.6*	200.3	*+21.2*	1,471	*+0.6*	163.2[b]	*7.4*	*8.4*[b]	*6.6*[b]
Quincy	1,215	*-65.9*	41.8	*-3.5*	263	*+9.6*	18.4	*-1.6*	*9.9*	*5.4*
Springfield	2,291	*-54.2*	120.4	*-0.3*	4,080	*+103.0*	91.8[b]	*1.3*	*6.4*[b]	*5.7*[b]
SOUTHERN ILLINOIS										
East St. Louis	n.a.	*n.a.*	23.0	*-0.9*	215	*+7.5*	22.1	*-0.5*	*12.1*	*10.9*
Alton	797	*+7.0*	81.6	*+2.9*	134	*+9.0*	13.8	*-0.7*	*11.1*	*9.0*
Belleville	293	*-8.4*	28.0	*+2.6*	385	*+18.1*	17.5	*-0.6*	*11.4*	*9.4*
Carbondale-Murphysboro	1,888	*-4.0*	33.7	*-6.1*	384	*+12.6*	11.5[f]	*-0.9*	*6.6*[f]	*5.6*[f]

[a] Total for cities listed. [b] Data for standard metropolitan statistical area. [c] Includes immediately surrounding territory. [d] Includes East Moline.
[e] Data for Carbondale township. [f] Data for the City of Carbondale.

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Illinois Business Indexes

Item	Nov. 1980	Oct. 1980	Sept. 1980	Aug. 1980	Nov. 1979
Leading indicator (1969=100)	89.9	88.3	85.9	83.3	92.7
Coincident indicators (1969=100)	124.3	125.4	125.2	123.7	149.3
Employment - manufacturing (in thousands)	1,179.8	1,182.6	1,190.4	1,183.4	1,223.5
Average weekly hours - manufacturing	40.1	39.7	39.9	39.3	41.3
Weekly earnings - manufacturing	$338.44	$331.50	$330.77	$320.30	$309.89
Layoff rate - Chicago	0.7	0.8	0.9	1.0	1.0
Help Wanted Advertising - Chicago (1967=100)[1]	77.0	70.0	71.0	68.0	111.0
Help Wanted Advertising - St. Louis (1967=100)[1]	60.0	59.0	54.0	52.0	78.0
Ordinary life insurance sales (in millions)	$1,504	$1,711	$1,519	$1,406	$1,513
Retail sales (in millions)	n.a.	$4,154	$3,803	$3,901	$4,258
Coal production (in thousands tons)	5,018	5,195	5,372	5,278	5,017
Petroleum production (in thousands barrels)	1,900	1,975	1,868	1,855	1,840
Vendor performance (percent)	50.0	44.0	39.0	33.0	51.6
Building permits (in thousands)					
Residential housing units	2.87	3.42	3.25	2.63	2.34
Value of residential housing	$117,989	$138,076	$136,291	$111,536	$88,867
Value of nonresidential construction					
Industrial buildings	$20,721	$33,383	$25,582	$19,868	$27,900
Office, banks, and professional buildings	$49,777	$52,465	$30,354	$19,332	$61,000
Stores and other mercantile buildings	$17,309	$12,392	$17,893	$13,496	$28,939
Other	$60,167	$58,840	$34,720	$34,720	$49,884
Consumer price index					
North Central US	-	138.3	-	134.9	-
North Central/population more than 4,000,000	-	140.8	-	136.8	-
North Central/population 385,000 to 1,250,000	-	137.6	-	134.7	-
North Central/population 75,000 to 385,000	-	135.1	-	132.9	-
North Central/population less than 75,000	-	134.6	-	131.7	-
Chicago	259.9	253.7	250.1	245.2	225.8
St. Louis	253.8	-	252.4	-	225.6
Prices received by farmers	135	135	133	130	108
	1980:II	1980:I	1979:IV	1979:III	1979:II
Personal income (in millions)	$118,161	$116,226	$112,317	$112,096	$109,013

[1] Source: The Conference Board, *Help Wanted Advertising*, November 1980. n.a. not available.

(Continued from page 10)

basis) in the US, about 25 percent is petroleum fuels; another 5 percent is vehicles being transported. Counting the backward linkages of the transportation-related industries, intercity truck transportation probably is more than 50 percent in service of transportation. It follows that a reduction of other transportation expenses would automatically reduce also the demand for truck hauling. Resources could then either be saved or set free for other purposes, such as investment. The area-extensive transportation systems in American cities also call for large areas of parking space around places of work and shopping, thus expanding the physical size of cities and increasing the apparent need for transportation.

Whatever the explanation, transportation remains the principal reason for high energy intensity in the American economy. With recent and current levels of oil import prices, transportation also becomes a major cause of inflation. This will be so also under a regimen of new substitute energy sources, for these will all be expensive and cause an embarrassing burden on the American economy unless final demand for energy is strongly reduced. It is an illusion to believe that either oil imports or inflation can be brought under control without doing something serious about transportation. The very timid moves attempted so far are characteristic of the essential lack of consequence in the measures which pass for a national energy policy.

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The Value of Better Mileage

WILLIAM R. BRYAN

With the rising price of gasoline there is a corresponding increase in the value to the consumer of fuel-efficient automobiles. The accompanying tables lay the basis for calculating the present value of alternative improvements in gasoline mileage. The chief factors entering this cost-saving calculation are the gallons of gasoline saved, the price of gasoline, and the rate at which the consumer discounts future cost savings.

Importance of the Base

The major determinant of the impact of mileage improvement on saving is the *base* from which a prospective mileage gain would occur. As Table 1 shows, an improvement from 10 to 15 miles per gallon saves 333 gallons each year for those who drive 10,000 miles; but an improvement from 35 to 40 miles per gallon results in gasoline savings of only 36 gallons. The explanation for this is simple. An improvement from 10 to 15 miles per gallon is, put differently, an improvement from 1/10th gallon per mile to 1/15 gallon per mile, a 33 percent reduction in per mile gasoline usage. By comparison, an improvement from 35 to 40 miles per gallon is a gain of only 1/35th gallon per mile to 1/40th gallon per mile, a reduction of only 12.5 percent. Clearly, there will be larger savings for those who drive a great deal. See columns for 15,000 and 25,000 miles of yearly driving.

Table 1. Gasoline Savings

Mileage improvement from	to	Annual miles driven 10,000	15,000	25,000
		(gallons saved)	(gallons saved)	(gallons saved)
10 mpg	15 mpg	333	500	833
15	20	167	250	417
20	25	100	150	250
25	30	67	100	167
30	35	47	71	119
35	40	36	54	89

Table 2. Annual Savings and Gasoline Prices[a]

Mileage improvement from	to	Price per gallon $1.25	$1.50	$1.75
		(annual savings)	(annual savings)	(annual savings)
10 mpg	15 mpg	$625	$750	$875
15	20	313	375	438
20	25	188	225	263
25	30	125	150	175
30	35	89	107	124
35	40	68	81	95

[a] Assuming 15,000 total annual mileage.

Annual Savings and the Price of Gasoline

Table 2 displays the annual savings corresponding to alternative 5-mile improvements and differing gasoline prices. The table assumes that the consumer drives 15,000 miles per year. However, if the reader wishes to relate these results to his specific driving habits, he can do so easily. For example, a reader who drives 18,000 miles per year can simply multiply any number in Table 2 by 1.2 (18,000 ÷ 15,000 = 1.2).

With the price of gas at $1.50 per gallon (the approximate price at this writing), a consumer can reduce his annual operating costs by as much as $750 from a 5-mile improvement in mileage. Here again, however, the value of the mileage improvement depends chiefly on the base from which the gain occurred. An improvement from 30 to 35 miles per gallon results in savings of only $81. This result stems directly from Table 2.

Present Value of Reduced Operating Costs

The remaining problem is to convert prospective reductions in operating costs into estimates of their present value to the consumer. To do this I resort to present value techniques used in judging the value of an investment. Think of it this way. To have $1,000 one year

Using Adoption and Diffusion Theory to Improve the Odds of New-Product Success

By Saul Sands / Page 6

Table 3. Present Value of Three-Years' Operating Savings[a]

Mileage improvement from	to	Alternative discount rates 5.5%	10.0%	20.0%
10 mpg	15 mpg	$2,023	$1,865	$1,580
15	20	1,012	933	790
20	25	607	560	474
25	30	405	373	316
30	35	289	266	225
35	40	219	201	171

[a] 15,000 annual mileage, $1.50 per gallon

from now with funds earning 5.5 percent would require an initial investment of $948 (approximately); if funds were invested at 10 percent the required initial investment would be $909; and if the interest rate were 20 percent, the initial investment need be only $833. That is, the outlay necessary to produce $1,000 one year hence is either $948, $909, or $833 corresponding to interest rates of 5.5 percent, 10 percent, or 20 percent, respectively.

By an identical reasoning I estimate the present value of a stream of operating savings. For this purpose, I assume that the consumer evaluates his automobile over a 3-year horizon. Table 3 displays the present value of three consecutive years of operating savings — assuming a $1.50 per gallon price of gasoline and 15,000 miles driven per year. Present values are calculated based on discount rates (that is, interest rates) of 5.5 percent, 10 percent, and 20 percent.

The present value of improved mileage ranges from $2,023 to $171. Based on the assumptions contained within the table, the consumer saves most in the movement from very low mileage cars to those with reasonable mileage. For example, a change from an automobile averaging 10 mpg to one averaging 20 mpg would produce cost savings with a present value of from $3,035 to $2,370, depending upon the appropriate rate of discount. But improvements above 25 mpg have substantially reduced present values. For example, a 15 mpg gain from 25 to 40 mpg displays a present value of from $1,113 to $712.

Two Examples

Suppose Mr. Brown drives 35,000 miles per year and currently owns an automobile getting 20 miles per gallon of gasoline (priced at $1.50 per gallon). Assume further that Mr. Brown characteristically places his excess funds in an institution paying 5.5 percent for deposits. How much value can he reasonably place on a car that averages 30 miles per gallon?

Mr. Brown may turn to Table 3 and add the present values within the 20–25 and 25–30 rows under the 5.5 percent column. These sum to $1,012. But those estimates are for a person driving only 15,000 miles per year. Mr. Brown drives 2.3 times that many miles (35,000 ÷ 15,000 = 2.333). Hence, the present value to Mr. Brown of the cost reduction would be about $2,361.

Ms. Smith could be considering the same two automobiles, but from a different perspective. Suppose she drives only 5,000 miles per year and invests her excess funds at a 20 percent rate of interest.

Ms. Smith would turn to Table 3 with a view toward adding the numbers in the 20–25 and 25–30 rows in the 20 percent column. These sum to $790. But she drives only one-third the miles assumed in the table. Hence, the present value to Ms. Smith of the cost reduction would be about $263.

In shopping for automobiles, Mr. Brown and Ms. Smith face the same set of prices, even though the personal values they attach to the improved mileage may vary. Note also that a premium for improved mileage is presumably imbedded in the price of the automobile. It may be to Ms. Smith's advantage to buy a "gas guzzler," if the price is right!

Conclusions

From the perspective of the ordinary consumer, the chief benefits of improved automobile mileage occur in moving over the 20 miles per gallon flashpoint. Remaining mileage improvements are fun to talk about, but they do not assist much in saving on operating costs. Once consumers discover this, it is likely that their desire for exotic high-mileage vehicles will weaken. Consumers may again be willing to trade enhanced comfort for improved mileage. Having said this, it is important to observe that people differ in everything — including notions about what constitute "much."

But balance such a consideration against the prospects for much higher gasoline prices. If gasoline prices in the US rise to the level paid in Europe, market pressures will continue for further improvements in automobile efficiency.

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Director, ROBERT W. RESEK; *Assistant to the Director,* WILLIAM R. BRYAN; *Editor,* NELLE WAGNER; *Research Assistants,* THOMAS B. BRYAN, PHILLIP A. CARTWRIGHT, JOHN F. SCHNELL, and RUSSELL SMITH.

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Illinois Business Indexes

Item	December 1980	November 1980	October 1980	September 1980	December 1979
Leading indicator (1969=100)	90.4	89.8	88.2	85.9	92.0
Coincident indicator (1969=100)	125.8	125.7	125.9	125.2	143.8
Employment-manufacturing (in thousands)	1,175.7	1,179.8	1,182.6	1,190.4	1,214.2
Average weekly hours-manufacturing	40.9	40.1	39.7	39.9	41.4
Weekly earnings-manufacturing	$348.88	$338.44	$331.50	$330.77	$312.57
Layoff rate-Chicago	0.8	0.7	0.8	0.9	4.7
Help wanted advertising-Chicago (1967=100)[1]	70.0	77.0	70.0	71.0	115.0
Help wanted advertising-St. Louis (1967=100)[1]	55.0	60.0	59.0	54.0	78.0
Ordinary life insurance sales (in millions)	$2,015	$1,504	$1,711	$1,519	$1,811
Retail sales (in millions)	n.a.	$4,284	$4,213	$3,803	$4,924
Coal production (in thousands of tons)	5,469	4,666	5,195	5,372	4,864
Petroleum production (in thousands of barrels)	1,365	1,808	1,975	1,868	1,937
Vendor performance (percent)	49.6	50.0	44.0	39.0	55.5
Building permits (in thousands)					
Residential housing units	1.35	2.87	3.42	3.25	2.03
Value of residential housing	$58,297	$117,989	$138,076	$136,291	$69,279
Value of nonresidential construction					
Industrial buildings	$14,254	$20,721	$33,383	$25,582	$25,012
Office, banks, and professional buildings	$37,267	$49,777	$52,465	$30,354	$53,196
Stores and other mercantile buildings	$11,269	$17,309	$12,392	$17,893	$22,330
Other	$20,258	$60,167	$58,840	$34,720	$23,176
Consumer price index					
North Central US	140.4	-	138.3	-	125.1
North Central/population more than 4,000,000	143.3	-	140.8	-	126.3
North Central/population 385,000 to 1,250,000	140.0	-	137.6	-	124.6
North Central/population 75,000 to 385,000	136.6	-	135.1	-	123.7
North Central/population less than 75,000	136.2	-	134.6	-	123.0
Chicago	260.3	259.9	253.7	250.1	228.3
St. Louis	-	253.8	-	252.4	-
Prices received by farmers	132.0	135.0	135.0	133.0	113.0

	1980:III	1980:II	1980:I	1979:IV	1979:III
PERSONAL INCOME IN ILLINOIS[2] (in millions of dollars)					
PERSONAL INCOME by place of residence	$122,435	$118,161	$116,226	$112,317	$112,096
TOTAL LABOR AND PROPRIETORS' INCOME by place of work					
by type					
Wage and salary disbursements	$ 75,792	$ 74,534	$ 73,678	$ 70,954	$ 72,266
Other labor income	8,137	7,976	7,672	7,287	7,376
Proprietors' income	7,235	6,798	7,298	7,603	7,294
Farm	1,615	1,401	1,695	2,026	1,878
Nonfarm	5,620	5,397	5,603	5,577	5,416
by industry					
Farm	2,047	1,826	2,110	2,419	2,259
Nonfarm	89,117	87,482	86,539	83,424	84,678
Private	77,198	76,137	75,416	72,527	73,653
Ag. serv., for., fish., and other	201	204	198	201	198
Mining	888	902	885	885	900
Construction	5,042	5,106	4,944	4,920	4,970
Manufacturing	25,660	25,481	25,602	24,271	25,741
Nondurable goods	7,916	7,685	7,578	7,740	8,055
Durable goods	17,744	17,796	18,024	16,531	17,686
Transportation and public utilities	7,227	7,175	7,180	7,058	7,028
Wholesale trade	7,585	7,484	7,292	7,086	7,188
Retail trade	8,635	8,432	8,520	8,133	7,941
Finance, insurance, and real estate	6,213	5,992	5,796	5,592	5,521
Services	15,747	15,361	15,000	14,383	14,167
Government and government enterprises	11,919	11,345	11,122	10,897	11,025
Federal, civilian	2,180	2,134	2,031	2,004	1,942
Federal, military	540	581	577	556	517
State and local	9,199	8,630	8,514	8,338	8,566
INCOME BY PLACE OF WORK					
Wage and salary disbursements	75,792	74,534	73,678	70,954	72,266
Farm	390	384	376	357	346
Ag. serv., for., fish., and other	125	128	123	126	124
Mining	679	692	683	686	702
Construction	4,241	4,314	4,093	4,026	4,058
Manufacturing	22,010	21,886	22,074	20,956	22,280
Nondurable goods	6,833	6,642	6,574	6,726	7,021
Durable goods	15,177	15,244	15,500	14,231	15,259
Transportation and public utilities	6,078	6,035	6,066	5,978	5,968
Wholesale trade	6,570	6,514	6,337	6,160	6,280
Retail trade	7,228	7,090	7,132	6,795	6,651
Finance, insurance, and real estate	4,863	4,743	4,574	4,384	4,323
Services	12,063	11,753	11,431	10,913	10,833
Government and government enterprise	11,545	10,993	10,789	10,574	10,702
Federal, civilian	2,085	2,042	1,946	1,921	1,862
Federal, military	540	581	577	556	517
State and local	8,920	8,371	8,266	8,097	8,322

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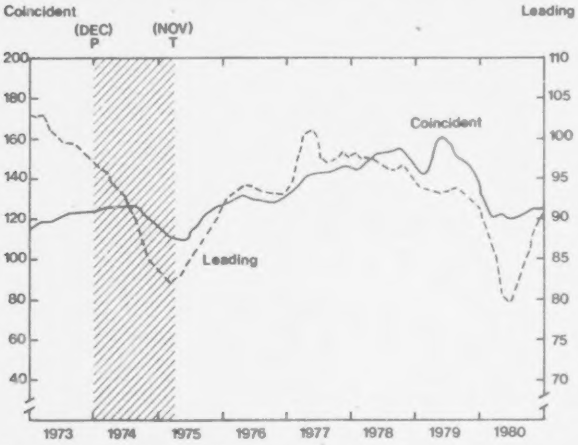
[1] Source: The Conference Board, *Help Wanted Advertising*, December 1980. [2] Bureau of Economic Analysis, *Major Sources of Personal Income in Illinois*, January 1981. n.a. not available.

Illinois Economic Indicators



Bureau of Economic and Business Research

Note. *P* and *T* designate peaks and troughs of the business cycle for the US as defined by the National Bureau of Economic Research.

The composite indicators of economic activity in Illinois continued to gain ground during December 1980. Although the coincident indicator is below that recorded one year earlier, the 0.7 percent advance recorded in December confirms previous statements that the Illinois economy is rebounding from the slump which began in late 1979, although the pace of recovery is quite slow.

The index of leading indicators rose by 0.7 percent on the monthly basis. December's gain fell considerably short of the 1.7 percent surge posted one month earlier. The decline in the rate of increase is largely due to a drop in the level of construction activity. The number of residential housing units posted in December slid by 22 percent from November's total on a seasonally adjusted basis. The manufacturing layoff rate for Chicago remained constant at a seasonally adjusted 0.6 percent, and average weekly hours increased by 0.5 percent.

ILLINOIS COUNTY AND STATE DATA AVAILABLE

The following county level data sets continue to be available: 1973–78 personal income data for US, Illinois, and Illinois counties; 1973–78 employment data for US, Illinois SMSAs, and Illinois counties; and 1969–77 farm income and expenditures data for US, Illinois, and Illinois counties. The charge is $20 for each set to cover reproduction and handling costs. Individual county pages are $1 each with a $5 minimum charge.

Two sets of Illinois statewide personal income are available: detailed components of Illinois personal income (intermediate table) 1958–79; and Illinois personal income by major source and earnings by 2-digit SIC, 1958–79. Charge is $5 for each set.

To obtain these data sets, write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, 1206 S. Sixth St., Champaign, IL 61820. All sets originate with the Bureau of Economic Analysis of the US Department of Commerce.

Comparative Economic Data for Selected Illinois Cities, December 1980

	Building permits (000)		Electric power consumption (000,000 kwh)		Employment (000)		Estimated work force unemployed (percent)	
	Dec. 1980	% change from Dec. 1979	Dec. 1980	% change from Dec. 1979	Dec. 1980	% change from Dec. 1979	Dec. 1980	Dec. 1979
ILLINOIS	\$100,482[a]	n.a.	3,527.0[a]	+2.6	5,021.0	-2.2	8.9	6.2
NORTHERN ILLINOIS								
Chicago	54,634	-3.3	1,715.0	+2.8	3,173.0[b]	-2.1	8.4[b]	5.6[b]
Aurora	1,640	-43.9	136.9	+19.4	36.3	-2.2	11.1	8.8
Elgin	550	-26.9	87.0	-3.0	28.0	-2.1	9.3	6.3
Joliet	1,766	-47.5	416.4	+7.4	34.8	-2.0	13.5	14.5
Kankakee	74	-96.5	73.3[c]	-6.0	37.1[b]	-5.1	12.2[b]	8.5[b]
Rock Island-Moline	n.a.	n.a.	122.1[d]	+3.3	101.6[e]	-10.2	8.5[e]	4.7[e]
Rockford	2,568	-20.5	160.9	+2.6	115.3[b]	-12.7	14.6[b]	6.5[b]
CENTRAL ILLINOIS								
Bloomington-Normal	5,662	+1178.1	49.0	-5.4	58.2[b]	+0.2	6.9[b]	5.0[b]
Champaign-Urbana	11,449	+426.4	53.8	-1.5	78.8[b]	+0.6	5.9[b]	4.6[b]
Danville	676	-79.3	47.4	+3.7	15.7	-7.1	15.4	12.1
Decatur	5,005	+74.5	121.2	-3.0	54.9[b]	+0.4	11.6[b]	12.0[b]
Galesburg	758	+32.1	29.3	-5.5	12.9	-9.8	15.2	7.7
Peoria	4,929	+112.1	192.6	+17.5	163.3[b]	+5.9	9.1[b]	7.5[b]
Quincy	1,778	+288.2	38.3	-7.7	17.7	-4.3	10.6	6.3
Springfield	2,911	+73.2	122.2	+7.0	90.9[b]	-0.2	7.0[b]	6.4[b]
SOUTHERN ILLINOIS								
East St. Louis	n.a.	n.a.	22.9	-2.1	22.1	-2.2	11.8	11.4
Alton	42	-90.9	73.7	-9.8	13.8	-2.1	12.0	9.7
Belleville	5,868	+3021.3	27.9	+2.8	17.4	-2.8	12.5	10.1
Carbondale-Murphysboro	172	+16.2	37.3	+13.4	11.2[f]	+15.5	6.8[f]	6.7[f]

[a] Total for cities listed. [b] Data for standard metropolitan statistical area. [c] Includes immediately surrounding territory. [d] Includes East Moline. [e] Illinois portion of Davenport-Rock Island-Moline. [f] Data for City of Carbondale. n.a. not available.

Using Adoption and Diffusion Theory to Improve the Odds of New-Product Success

SAUL SANDS

Predictions about new-product acceptance by buyers may well be improved if the new-product marketer applies what is known about consumer behavior in this area. This knowledge could help the new-product marketer reduce the rate of failure.

Pertinent to the new-product marketer is the topic referred to as the diffusion and adoption of innovations. There have been numerous contributions from many different disciplines to this area. E. M. Rogers and F. F. Shoemaker [14] cite some 1,080 studies in the area, 64 of which have been specifically in the marketing field. Generalizations about the topic can be found from India to America and from farming techniques to push-button telephones.

My main thrust in this paper is geared at reducing the number of new-product failures through the use of the theories of diffusion and adoption of innovations. To this end, it is necessary to extract conclusions and generalizations applicable to new-product strategy and testing.

Adoption and Diffusion as Distinct Processes

The adoption process focuses on "the mental process through which an individual passes from first hearing about an innovation to final adoption" [14]. Adoption is the ultimate decision to use the innovation on a regular basis. Diffusion is the term given to "the process by which these new ideas are communicated to the members of a social system" [14].

The two concepts can be contrasted according to a micro viewpoint versus a macro viewpoint. The micro viewpoint refers to the mental and behavioral processes that an individual goes thrugh that lead to the adoption of a new product. The macro viewpoint refers to the diffusion process which is concerned with adoption of innovations by groups of individuals. The two processes interact to determine the pattern of diffusion and adoption of an innovation.

New Product Defined

A new product is one which is perceived as new by a person or social system. The "person or social system" may vary from "a single individual to a city or to a state" [17].

As Rogers and Shoemaker point out, it is the perception of the new product which matters, not whether it is objectively new or not: "New product managers and new product marketing texts often become enmeshed in the problem of whether the idea is really new or a reinterpretation of something old, completely ignoring the fact that the consumer does not have this total knowledge or viewpoint. If it is new to the consumer then it is a new product" [8].

Dr. Saul Sands is associate professor of marketing at Hofstra University.

The Adoption Process

The adoption process is concerned with the mental stages that an individual or social system goes through which leads to the adoption or nonadoption of a new product. It is (1) the fruition of a decision-making process; (2) often influenced by deliberate plan or strategies made by others (new-product marketer); and (3) affected by the personality and creative ability, basic wants, and so forth, of individuals [8].

Adoption theory has it that upon the realization of a new product's existence there are stages that individuals go through on the way to teaching a decision to adopt or reject. The period from initial awareness to adoption or rejection of the product may range from a few days to several years. Rogers and Shoemaker call this the innovation-decision period. They cite two studies in which the period ranged from an average of two years for the decision to adopt language labs in US high schools to an average of nine years for the decision to adopt hybrid corn in Iowa [14].

Adoption Models

The original model of the adoption process consisted of these stages: awareness, interest, evaluation, trial, and adoption. A subsequent model developed by Rogers and Shoemaker consists of these stages: knowledge, persuasion, decision, and confirmation.

According to David F. Midgley [8], the adoption or rejection process becomes observable when large numbers of individuals are aggregated. Furthermore, this mass behavior is easier to measure and predict than individual behavior.

An Overview of the Adoption Process

Using the Rogers and Shoemaker model, an overview of the adoption model would look like this:

At the *Knowledge Stage,* there are distinct differences between those who have acquired some information about a new product early and those who are late in recognizing it. According to M. Wayne Delozier [2], "those who recognize an innovation early have a higher level of education, a higher social status, a greater exposure to mass media and interpersonal channels of communication, more change agent contact, and greater social participation and are more cosmopolitan than those who are aware of it later." Since a new-product marketer is interested in having his product deeply entrenched at the time of competitive entry, it would prove beneficial for a company to apply its marketing strategies to persons who recognize innovation early.

At the *Persuasion Stage,* the individual develops an attitude toward the innovation which leads to either an adoption or rejection of the idea. Although personal and situational characteristics are important at this stage, the individual in forming his attitude evaluates the new product over an array of characteristics known as "dimensions of innovation." These dimensions will be discussed later.

At the *Decision Stage,* an individual or social system having used the new product will decide to adopt it for further use or to reject it. This decision may be influenced by a competitive innovation that the buyer perceives as superior or simply because the buyer is in some way not satisfied with the new product.

At the *Confirmation Stage,* the buyer may seek out friends and/or other sources of information to assure him of the value and attractiveness of his purchase [5]. If this is the case, the company should seek in some way to assure the buyer of the correctness of his purchase action.

Variables That Affect the Speed of Adoption Process

It should be recognized by the new-product marketer that each stage of the adoption process is affected by various "variables." These variables act to increase or decrease the speed of the adoption process and marketing plans should be implemented with these variables in mind. The marketer would naturally want to speed up adoption of his new product.

In this connection, it would be useful for a product planner to weigh the following considerations:

(1) *Cost* — of the new product to the buyer should be considered by the new-product marketer because of its effect on purchase decision. When an innovation is first introduced, its price affects the number of buyers who consider and actually adopt the new product. A study by F. C. Fliegel and J. E. Kivlin [3] indicates that initial price correlates with frequency of adoption of the new product among potential adopters.

(2) *Social costs of innovations* — are perceived expenses that a consumer might have to incur because of his decision to adopt a new product that is socially unacceptable. These social costs "come in the form of ridicule, ostracism, or even exclusion or expulsion from some relevant reference group" [17]. It was found that social cost was an important factor in explaining the number of buyers who adopt innovations in developing countries. Social costs should be studied by the new-product marketer in countries where the company is considering marketing a new product. Marketers must be aware of the beliefs and values of different cultures in order to determine whether the new product is socially acceptable.

(3) *Immediacy of reward to buyer* — is of special significance to new product managers when potential consumers have "little tolerance for situations where the deferral of gratification varies according to culture and within cultures according to class, education, [illegible] and achievement motivation. If a new-product marketer is marketing a new educational program he would be concerned with reaching buyers who are able to wait for rewards in months or years hence, and who would be satisfied. Further, individuals having lower levels of education, achievement motivation, and income are less likely to adopt innovations having no immediate and substantial rewards" [12]. More modern societies are likely to allocate resources with long periods of deferral of gratification attached. If a marketer for a company is marketing a new sewage treatment system that takes five years to install, he might not be successful in a developing country.

(4) *Efficiency* — of innovations in terms of (1) time saving and (2) the avoidance of discomfort is a particularly important factor which the new-product manager must consider [17]. Consumers will be more likely to adopt an innovation that will bring about relief from discomfort. Tranquilizing drugs such as Valium have encouraged many consumers to adopt the drug because of the relief of discomfort that it brings. Time-saving attributes appear to be important in labor-intensive industries, for example, in adoption decisions of moderately small but technically advanced adopters [3].

(5) *Risk and uncertainty* — of an innovation to a potential buyer is a potentially important factor to consider. I. D. Canton [1] observes that: "In the case of hybrid seed corn, it could be tried on a few acres without risking the whole crop. However, if the innovation involves a new system which requires scrapping a traditional production process, such as replacing open hearth with basic oxygen furnaces in the steel industry, obviously it is a different matter."

(6) *Relative advantage* — of an innovation is the degree to which an innovation is perceived as better than an existing product. Relative advantage is positively correlated with an innovation's adoption rate. The higher the relative advantage is perceived to be, the higher is the expected adoption rate. Product planners should be concerned with finding out the salient attributes (those attributes that are most important to the consumer) of those products within the same class that buyers purchase most frequently and should try to position their product so as to obtain a relative advantage over competition.

(7) *Demonstrability* — of an innovation suggests that the more amenable to demonstration the new product is, the more visible its advantages will be, and thus the more likely that it will be adopted. Demonstration may be viewed in two ways. First there is "use demonstration," which consists of showing how the new product is employed. Second, there is "result demonstration," intended to show the benefits of adopting a particular innovation. It would be desirable for the new-product manager to conduct both forms of demonstration as part of his marketing strategy. As an example of the first case, the marketer can offer a test drive of a new automobile; in the second case, the marketer can give out free samples of a new deodorant. Both forms of demonstrations are often not feasible for the same product.

(8) *Compatibility* — of an innovation is the degree to which an innovation is perceived to fit into a person's way of doing things. The more compatible an innovation is with a person's need structure, personal values and beliefs, and past experiences, the more rapid its rate of adoption. The adoption of acupuncture by American doctors has been slow because the procedure does not fit into their accustomed methods of anesthetizing patients. The new-product marketer should be concerned with the degree to which a new product demands adjustments in a person's behavior pattern.

(9) *Complexity* — of an innovation refers to the degree of perceived difficulty in use. The more difficult an innovation is to understand or use, the slower the rate of adoption. The new-product manager should be concerned with the degree of complexity of a new product.

(10) *Terminality* — of innovation is another important dimension that the new-product marketer should consider. It is pointed out that "A terminal represents a specific point in time beyond which the adoption of a new product becomes less rewarding or useless or even impossible. For example, last year's clothing fashion may be perceived as having no value this year" [17]. In marketing a new seed it is "either tried during one planting season or must wait another year or half-year before the opportunity again develops to use the new seeds" [17].

(11) *Reversibility* — of an innovation is "the degree to which and the ease with which the status quo ante can be reinstated" [16]. This simply means that a dissatisfied buyer should be able to get his money back. Where this guarantee exists, the new product is likely to be adopted faster. Thus, for new products where this is applicable, a money-back guarantee should be considered.

(12) Linked to the foregoing point is the notion of *Divisibility* which would permit the buyer to try or implement the product on a limited basis [17]. If possible, trial offers should be considered by product planners.

(13) *Publicness versus privateness* — of innovations is another trait which new-product managers should consider in their product strategy. A public benefit is one which, if available to one party in a social system, is more or less automatically and simultaneously available to all members of the social system. Fluoridation of a community water system is an example. The decision to accept a public benefit is made by the decision-making body required to act on such decisions. The size and procedures of the decision-making body are important considerations for the marketer to consider for public marketing.

(14) *Number of gatekeepers* — involved between the introduction of an innovation into a social system and the actual adoption of the innovation by the system or its members should also be considered by the new-product manager. A gatekeeper is one who carries a message to people not yet exposed to information about the innovation. He can keep the information to himself or "open the gate" and pass it on. The more gatekeepers who "open the gate," the more legitimate the information is. Some innovations must go through a large number of gatekeepers to be legitimate enough for effective adoption [17].

(15) *Number of specific stages of refinement and approval* — that the new product passes through that legitimitize its effectiveness should be considered by the new-product manager. A node could be anything that adds credibility to an innovation. For example, "in science the innovation passes through a number of nodes (stages): preliminary reports of findings to local colloquia; delivery at national meetings and exchange with attendants; the completion of the manuscript and circulation of preprints; submission of manuscript to journal; reviewing and refereeing process; journal publication, that is, prints, citations and integrative reviews" [4]. When a marketer is introducing a new car, the innovation can pass through a number of nodes: reports in magazines before introduction; advertisements; ratings by consumer panels; articles in the press; auto shows; and word of mouth.

(16) *Gateway capacity* — of an innovation involves the extent that the adoption of an innovation may open avenues to the adoption of other innovations. For example, "The adoption of radio has been demonstrated to be a frequent precursor of the adoption of other modern innovations. The rationale is that increased exposure to mass media (as a result of radio ownership) establishes a more cosmopolitan outlook, which is conducive to adopting new ideas, practices, and things" [6]. Thus, the new-product manager should keep in mind that the adoption of some innovations serves as stepping stones to other innovations and should use this notion in his overall product strategy.

(17) *Ego-involvement* — is the extent to which a person's beliefs and values are influenced by a new product, thereby influencing a person's decision to adopt the product. For example, "Social psychologists Sherif and Cantril have observed that when a person is very much ego-involved in an issue, it becomes difficult to persuade him to accept a message opposing his own on the issue. On the other hand, if the persuasive message is also in the same direction as the person's attitude about the issue, the probability of his accepting the message is greatly increased" [15]. New-product managers should realize that as a person becomes more ego-involved in the type of innovation under consideration, the likelihood of his adopting the innovation will increase as the innovation is viewed as closer to his own position.

(18) *Product planners* — should design a communication system that accelerates the adoption process. Advertising and public relations probably are most effective in creating awareness and interest; salesmen may be most effective in bringing about evaluation. But often it is word-of-mouth recommendation by peers that brings about trial and adoption. This notion is supported by Midgley who states that "Were there no such 'word-of-mouth' communication, adoption would occur at a far slower rate than actually arises" [8]. Therefore, the new-product marketer should view the mass media as an important external input and should place primary concern on producing a product that will provide favorable interpersonal feedback among users and potential users.

The Diffusion Process

According to Rogers and Shoemaker, the diffusion process refers "to the process by which new ideas are communicated to the members of a social system" [14]. Different groups of the social system (adopter categories) go through the adoption process at different times. This period can be shorter for one adopter category than for another. The diffusion process is a result of interaction among current adopters and potential adopter categories. One can reasonably assume that favorable communication and influence among adopter categories is a potent force for new-product success.

Robertson identifies five "consumer innovator" factors or categories, which allow for a more detailed discussion of innovator characteristics which may lead to the communication of new products [11]. These are (1) *venturesomeness* — taking risks in the purchase of a new product; (2) *social integration* — participation with other members of the community: (3) *cosmopolitaness* — degree of orientation beyond the community; (4) *social mobility* — moving from one position in society to another; and (5) *privilegedness* — income as a primary determinant of innovative behavior.

Adopter Categories

Rogers and Shoemaker classify five adopter groups: innovators, early adopters, early majority, late majority, and laggards. Typically, the proportion of innovators in a potential market is not large. According to diffusion theory, innovators perform a vital role in the diffusion process. Innovators need little or none of interpersonal communication to adopt an innovation. Less innovative members of society need the reassurance of knowing that other people find the innovation satisfactory. Once the innovators try the new product, it is on the basis of their findings that many other individuals will adopt or reject it.

A critical question in this connection is, *who are the innovators and how can they be reached?* One approach to this problem that might be feasible is for the new-product marketer to turn to the body of knowledge about the characteristics of innovators (see, for example, [14 and 9]). However, while the information available is of considerable importance, there are too few solid findings available to the new-product marketer that accurately define the characteristics of innovators. *The main problem is that there has been very little work done on the characteristics as they affect new-product introductions.* The new-product marketer should rely on his own investigation and the existing knowledge as a starting point.

Robertson comments [11], "Does diffusion occur in some predictable manner? Is there such a person as a consumer-innovator? (Innovator here is used to refer to the earliest adopter in the diffusion process, rather than the creator or inventor of the product.) How do advertising and personal influence compare in effectiveness for new product diffusion? If these questions alone could be answered, considerable waste would be avoided in the marketing of new products."

Apropos of the attributes of innovators, there are few findings available to the new-product marketer that reliably suggest the characteristics of early adopters. Midgley takes this one step further and suggests that "the generalizations quoted by Rogers and Shoemaker were only applicable to major innovations. The innovator of fashion goods and supermarket products had distinct and different characteristics" [8]. However, characteristics common to innovators include the willingness to take risks, a favorable attitude toward change, and inner directedness.

The role of communication in the diffusion process is important to the new-product marketer. From a promotional standpoint, instead of covering the entire market expensively in the introductory stage, media and copy should be selected which are most likely to appeal to the innovators. As the diffusion process passes through different stages, the marketer's strategy should shift toward reassuring adopters that many of their peers have adopted the innovation. Throughout the process the marketer should be building awareness of the product in all the adopter groups so that the adoption period can be accelerated.

Opinion Leaders

The idea that some individuals influence the opinions of others is termed opinion leadership. Research has not indicated whether an opinion leader has adopted the innovation before communicating experiences about it. Since innovators are adopters by definition it cannot be inferred that opinion leaders are innovators. Since they influence the opinion of potential customers, these individuals should be given special attention by the new-product marketer in the formulation of a market program. Opinion leaders are probably more important in the persuasion stage than mass media because of their credibility and opportunity for two-way communication.

According to Midgley, "the present definitions of opinion leadership, and method for measuring it, tell us relatively little about whether some individuals have a disproportionate amount of influence in the adoption of a specific innovation" [8]. Joseph R. Mancuso [7] takes this one step further: "these people are typically early adopters of new products and thus useful predictors of the likelihood of new product acceptance, but their value could be greatly increased if they could be accurately identified with specific new products rather than new products in general."

Mancuso suggests that because of difficulties that exist in identifying opinion leaders, companies should attempt to create them. He asserts that the process of creating opinion leaders is basically simple. In Mancuso's study, "the initial step was to select high mobiles with a relatively high degree of status. The next step was to increase the subjects' confidence, and, to a lesser extent, their status. Conceivably, with a different creation technique, a choice could have been made to select highly confident subjects, with a resulting attempt being made to increase their mobility and status" [7].

Once opinion leaders are created, the new-product manager should direct promotional appeals to them. Expenses that would normally occur because of directing appeals to all consumers would not be necessary because opinion leaders would presumably communicate information to potential consumers.

Conclusion

A company attaches great importance to maximizing the rate of adoption of new-product introductions because (1) many companies like to be first in the market; (2) the company would like to be deeply entrenched at the time of competitive entry so that it would be difficult for competitors to develop brand loyalty; and (3) the company will have a higher rate of return on its investment if it penetrates the market faster for a given marketing budget.

The implications of diffusion and adoption theory for the new-product marketer is that knowledge and use of the theory will (1) help in the development of more reliable marketing programs; and (2) shorten the time span of the adoption period for a new-product introduction.

According to Irving D. Canton, president of Strategic Decisions Company, [1], "Considering the importance of the diffusion concept and the profusion of literature on the subject, it is surprising how few non-academic marketers know of or utilize its precepts in their work." E. M. Rogers feels that companies use diffusion theory extensively but, unfortunately, "A large proportion of these research reports lie only in the secret files of companies because they pose a competitive threat" [3].

And Thomas S. Robertson states [10], "Increasing the probability of new product success requires knowledge of the consumer-innovator. Gaining initial levels of acceptance is crucial, yet most new products never do. Test marketing and experimentation are not sufficient for new product success. Today's marketer requires knowledge of the consumer innovator and how to secure innovator adoption. The innovator can spell success or failure for the product by his acceptance or lack of acceptance and by the proven influence which he exerts over his peers."

It is hoped that this and similar papers will motivate more product planners to study adoption and diffusion theory to apply it in their product development work.

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Early Warning Signs

The economy has nearly regained the pace of activity achieved prior to the 1980 recession. But the level of unemployed resources, especially labor, has remained high. Notwithstanding the continued slack in the economy the rate of inflation has not slowed.

There is fragmentary evidence that the recovery has bogged down. That evidence is visible in monetary and financial markets, but is subject to alternative interpretations.

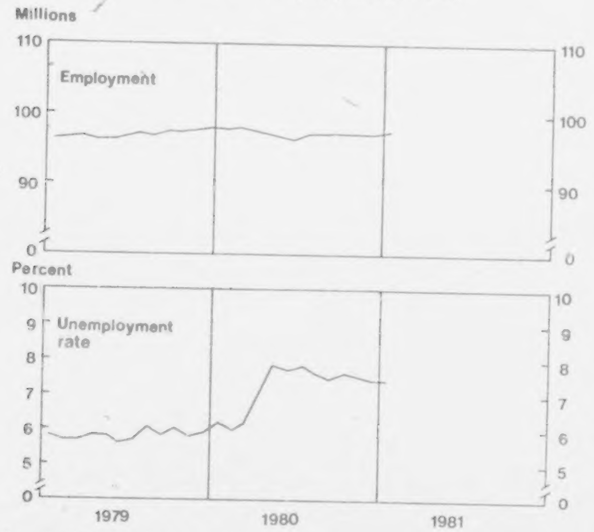
The Recovery to Date

Economic activity in the final portion of last year had nearly regained the tempo reached in late 1979. Moreover, early data for 1981 have been moderately upbeat. Real GNP — that is, gross national product adjusted to remove the effects of inflation — expanded at a 3.3 percent annual rate from the second to the fourth quarter of last year. Even so, the pace of real output remained about 1 percent below the first quarter of 1980, and barely above the rate reached two years earlier.

Other statistics relating to real economic activity indicate continued moderate gains early this year. Industrial production has expanded at a 7.4 percent annual rate since the end of last year. By comparison, in the preceding five months of recovery industrial output exploded at a 17.3 percent annual rate. Housing starts edged to a 1.6 million units annual rate in January, up from 1.5 million units in December. Although home construction activity has quickened markedly since last spring, it is down more than 10 percent from mid-1979.

Employment has risen only slightly since the end of last year. Indeed, employment growth during the recovery as a whole has been puny. Since June, the trough of the 1980 recession in terms of jobs, total employment has inched upward at a 1.6 percent annual rate. The rise in employment has been insufficient to reduce the portion of unemployed in the labor force. Hence, the unemployment rate has remained just under 7.5 percent — approximately unchanged since the bottom of the 1980 recession.

Employment and Unemployment Rate



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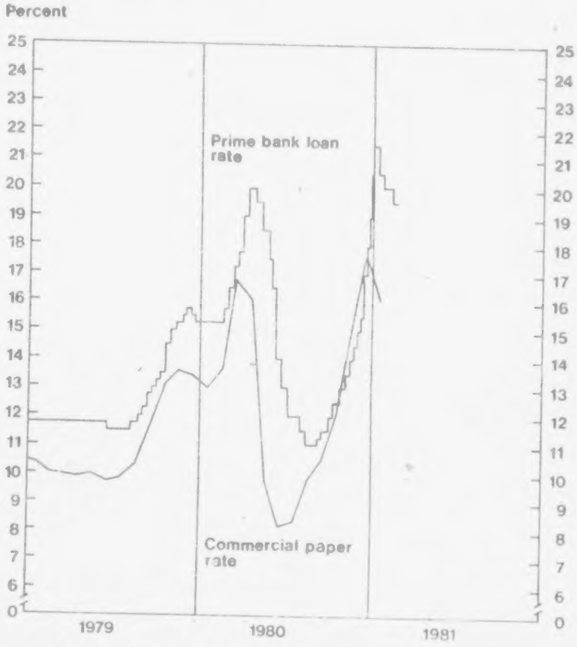
Selected Interest Rates



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Consumer spending has risen sharply during the recovery. From the second to the fourth quarter of last year personal consumption expenditures rose at a 15 percent annual rate. Since the end of last year retail sales, which account for roughly one-third of GNP, have exploded at a 26.9 percent rate. Sales at retail establishments featuring durable goods have been especially strong — with automobile sales registering more than a 4 percent increase in January.

The rate of inflation has been impervious to changes in economic activity. Consumer prices rose at a 14.7 percent rate during the 1980 recession, and have risen at a 10.2 percent rate since last June. Producer prices rose at a 12.8 percent rate during the recession; since then these prices have risen at just over a 10 percent rate. In short, the core rate of inflation has probably remained within the 10-12 percent range.

Prospects for the Future

The process of making predictions regarding the

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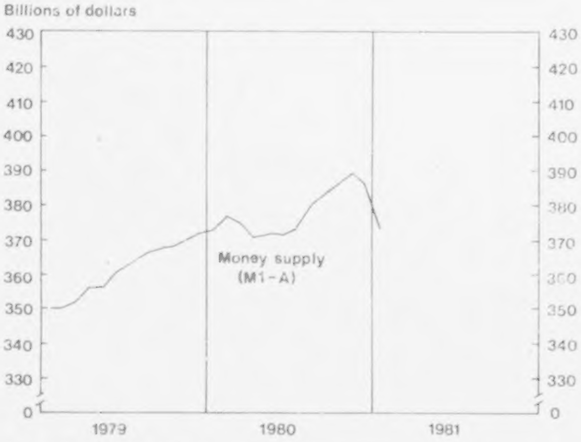
Money Supply



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future of the economy is not unlike reading tea leaves. First, there is the major question about whether the signs mean anything at all. That is, does the pattern of the data portend anything at all about economic developments? Are there consistent relationships? Granting that the relationships mean something, there is a second problem. It is difficult to read the leaves. It is not yet certain that the patterns are really there. The fragments of data are caught up in the economy's swirl. The major troublesome set of developments is the recent combination of declining interest rates coupled with a declining money supply.

Since December interest rates have drifted down. For example, the prime rate — the rates banks charge to major corporate customers — has declined from 21½ percent to below 19 percent. Over this same period most monetary aggregates have declined. The money supply (M1A) has fallen at nearly a 17 percent annual rate since November; in the preceding year money rose 5.7 percent. The broadened measure of money (M1B) has been about unchanged since November; in the preceding year it rose 7.8 percent.

It is my view that interest rate changes are predominantly determined by shifts in private credit demands, and that actions of the monetary authority consist chiefly of "leaning against the wind." If interest rates fall the Federal Reserve tends to cushion the decline; if rates rise the Fed tends to resist the increase. I am not suggesting that the Federal Reserve *should* operate in this fashion. Only that it does.

Such Federal Reserve practices permit us to use money supply and interest rate changes to gauge the strength of the economy. Declining interest rates and money supply suggest that demands for credit may be weakening. In turn, this suggests that economic activity may be slowing.

An alternative interpretation of these developments argues that recent interest rate changes reflect changing inflation expectations. According to this view, the very high interest rates in late 1980 reflected an exaggerated and unsustainable set of inflationary expectations. Those expectations have begun to cool. Hence, interest rates have begun to drift lower.

With a core rate of inflation in the 10–12 percent range, it is reasonable to expect interest rates to be in the 13–16 percent range. Most rates are currently within that range. Indeed, because interest rates tend to fluctuate around their equilibrium level, it would not be surprising if they moved temporarily lower.

We must wait to see which of these interpretations provides better predictive power. Hopefully, economic data for the next month or so will not be adverse. However, if the data begin turning sour it will not be a surprise.

WILLIAM R. BRYAN

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The Oil Crisis: A Case of American Underdevelopment

FOLKE DOVRING

The United States has a development problem and its name is energy; it is a classical development problem. We need to develop new supply sources and techniques of use, with maintained or enhanced productivity. This is because older sources are running out or otherwise are ceasing to be serviceable. The usual classification of countries as either "developed" or "developing" no longer holds.

The problem need not have led to any crisis if it had been anticipated early enough and met by adequate development policy. That is nowhere near what happened. The crisis in liquid motor fuel supply is caused by a lack of foresight which continues into current debate and policy.

The Long-Range Energy Problem

At length it will be necessary to replace fund resources (fossil and nuclear fuels) with flow resources (mainly sunshine, transformed in a variety of ways). We need to do this for two general reasons: one is that some fund resources, such as petroleum and naturally fissionable uranium, are going to run out. The longer-term reason is that even the large fund resources will eventually have to be abandoned from intensive use because of ecological concerns. Burning all the coal on earth (and all the natural gas, if the hypothetical "deep-pressured" deposits bear out) would alter the composition of the atmosphere in ways we cannot accept. Responsible policy should anticipate such long-range problems well before they grow into crisis proportions. That goes also for plutonium fission: environmental and societal problems from a large plutonium-based fission-power industry are likely to be such that they should be anticipated before we are stuck with them.

> Professor Folke Dovring, a former UN official, teaches land economics and economic development in the Department of Agricultural Economics, UIUC. His research and publications include institutional economics, development dynamics, productivity, and natural resource economics.

The Oil Crisis

For the present we have the oil crisis. Treatment of it is long overdue in this country. Balance-of-payments problems apart, the oil crisis includes two elements. One is the danger of incidental interruption of critical supplies from abroad. The other is the eventual exhaustion of usable domestic sources, which is now not remote in time. It is likely to be compounded by eventual phased reduction in foreign supplies. The way matters are going, declines of both domestic and foreign supplies are likely to converge in a severe oil crunch around 1990. In many quarters, the nature and causes of the crisis are misjudged and policy prescriptions are offered which not only will not solve the problem, but will make it worse by further postponing solutions which should have been started long ago.

The current disagreement turns around the question of how much petroleum still can be extracted from America's land. The conservative answer is that the easy sources are running out and that the rest is problematic enough not to be relied on to any large extent. The oil crisis was predicted by King Hubbert as early as 1948. He could forecast a decline in oil production in the US in the 1970s so long ahead of time because he used natural-science and engineering data. The ratio (in the US) of new oil finds to mileage of exploratory wells drilled — that ratio had begun to go down already in the 1930s, even as the oil industry was on the upswing. The find-to-drilling ratio has continued going down ever since and is now very low in this country. Worldwide,

The Market Structure of the US Domestic Petroleum Industry

By Phillip A. Cartwright / Page 4

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petroleum extraction is expected to peak around 1990, only two decades later than in the US where the petroleum industry was first developed.

An Oil-Rich Nation?

Against the conservative estimates of dwindling oil reserves in the US stands a new school of production-radical policy thinking. The campaign rhetoric of 1980 dwelt on hypothetical possibilities to expand oil output in the US, merely by price incentives and absence of constraining regulations. This new national policy expects rich oil finds offshore and on federal lands in the mountain states. It also makes much of secondary and tertiary oil layers.

The basis for such optimism is weak. Offshore drilling in North America has a dismal record in recent years. The large drive in the Gulf, west of Florida, in 1974 yielded large numbers of dry holes but no oil. On the Atlantic shelf, wells have been drilled in the Baltimore Canyon, off Newfoundland, and near Greenland, all with disappointing results. Unexplored shelf areas are at best hypothetical sources. Those west of Alaska are in part in contention with the Soviet Union which adheres to a different doctrine about offshore drilling rights. The so-called "over-thrust zone" in the Rocky Mountains, and another such zone theorized to exist in the Appalachians, are conjectural oil sources. The Rocky Mountain zone, which includes the Wyoming oil fields (producing 3 percent of our current oil output) was hailed in the Chevron Report as a potential large source, but so far has not proved out in test drillings done in Arizona and Alberta. We have no assurance that much will come of any of these potentials.

Production-radical optimism also points to vast amounts of oil still in the ground, in old fields. This is a misunderstanding: most of the "oil in place" is not an economic reserve. Secondary and tertiary oil layers are generally estimated at being more than twice the amount of oil already extracted, but only a small fraction of this is believed extractable by any known technology, even at very high oil prices. How difficult "enhanced recovery" of deep-down oil layers really is comes forth in the proposals for "mining" such oil by horizontal tunnels rather than by vertical drilling — an approach requiring exceptionally favorable topography to be feasible.

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An Econometric Projection

Underlying the production-radical optimism for increased oil production in the US is a belief in the power of higher prices to elicit more production, without regard for geological and technological facts. As an example of such theorizing, Table 1 shows projections from a study published in 1978 and relating to the years 1977 through 1985, plus comparable data and recent estimates for the years 1977 through 1981, the latter from an oil industry source.

The cited article expected large increases in oil supply whenever the world market price of 1976 (then about $13 a barrel) would apply to all US oil production, or to some large part of it (continued mild price control of "old oil" was admitted in one variant). By 1985, the US could then be self-sufficient in petroleum.

The recent data shown in the last column of the table now provide a test for such economic projections. In 1979 and 1980, international petroleum prices rose to double and more, of the prices counted as "world market" in 1976. Gradual decontrol made three-quarters of all domestic oil free from federal price control. Late in January 1981, remaining price controls were lifted (they were scheduled to be phased out by September in any event), a measure anticipated for some time. By these tokens, and if the econometric forecast were realistic, oil production in recent times ought to have risen sharply. Nothing like it happened. Production remains practically level, well below the 1970 peak figure of 3,500 million barrels. There was a slight rise in 1980, but the 1981 forecast did not expect that to last. Immediately after final decontrol, some oil industry experts estimated the production response to that measure to be an increase in oil output on the order of 1 percent (the "MacNeil-Lehrer Report," February 2).

What went wrong? The model used for these projections was as competent as econometric models usually are. The authors took note of the falling success rate in exploratory drilling; they expected that to turn around

TABLE 1. US Crude Oil Production: Projections of "Supply of Production" (Based on Data 1959-76) for 1977-85 Under Three Alternative Pricing Assumptions, and Actual Data and Recent Estimates for 1977-81 (Data in Million Barrels per Year)

Year	Projections, assuming wellhead oil prices to be			Recent data and estimates
	Constant	Extended (moderate) price controls	World prices	
	(1)	(2)	(3)	(4)
1977	3,013	3,150	3,450	3,009
1978	2,865	3,490	3,890	3,176
1979	2,607	3,995	4,317	3,115
1980	2,278	4,183	4,435	3,168
1981	1,879	4,364	4,590	3,132
1982	1,419	4,679	5,018	—
1983	—	5,170	5,447	—
1984	—	5,635	5,965	—
1985	—	5,650	6,028	—

Sources: Columns (1), (2), and (3) from Angelos Pagoulatos, David Debertin, and Emilio Pagoulatos, "Government Price Policies and the Availability of Crude Oil," *Western Journal of Agricultural Economics*, July 1978, pp. 70-72; Column (4) from *Statistical Abstract of the United States*, 1979, p. 606 (Table 1021) for 1977-78; *Survey of Current Business*, September 1980, p. S-31 for 1979; and *National Petroleum News*, December 1980, p. 56, for estimates of 1980 and 1981 production. For 1979 and 1980 see also *The Petroleum Situation* Vol. 10, October 1980, p. 4, with estimates close to those shown in Column (4) of the table.

TABLE 2. Capital Expenditures for Petroleum Industries, Estimates for 1979 and 1980, and Planned for 1981 and 1982 (Data in Million Dollars, Percent Change from Previous Year in Brackets)

Year	Oil production	Other[a]	Total
1978[b]	17,561	15,064	32,625
1979	19,967 (+13.7%)	21,336 (+41.6%)	41,303 (+26.6%)
1980	25,104 (+25.7%)	30,629 (+43.6%)	55,733 (+34.9%)
1981	32,410 (+29.1%)	48,942 (+59.8%)	81,352 (+46.0%)
1982	40,353 (+24.5%)	47,916 (-2.1%)	88,269 (+8.5%)

Source: McGraw-Hill Economics Department survey, as reported in *National Petroleum News*, December 1980, pp. 55–57.

[a] Includes marketing, transportation, oil refining, petrochemical industry, and "other," that is nonpetroleum operations (among them coal mining by petroleum companies).

[b] Computed from dollar and percentage data for 1979.

to some extent in response to the $13 price but not enough to prevent the reserve-to-extraction ratio from falling throughout the projection years. Much of the projected additions to reserves and production were to come from anticipated mobilization of dormant known resources to be upgraded to reserves, that is, extractable in economic terms.

Actual data and recent estimates show very little of these expectations coming true. The downtrend of extraction in old oil fields, which is marked in Texas, has been balanced by many small, shallow wells, mainly in old oil fields which were incompletely drained in times of low oil prices. "Wildcat" operators get $40+ a barrel, and so does the US government, from the California "Naval Reserve." Of enhanced secondary and tertiary recovery there are few traces.

The projection model had been tested against the statistics on which it was based, and the fit was found to be close year by year from 1959 to 1976. Yet its predictive value turned out to be nil. Apparently, the mix of variables reflected in the 1959–76 data does not entirely match the mix present around 1980. The projections also contain larger variations than those in the data base period.

The model is flawed by insufficient attention to physical data. It overestimates undiscovered and recoverable oil in the US. It further assumes secondary and tertiary oil strata to form an economic continuum with the primary oil layers, and it overlooks the energy cost of energy.

Tertiary Oil Recovery

The first reason that deep oil layers are not in economic continuum with shallow ones is the progression of costs in deep drilling and extraction. These costs do not just rise in simple proportion to drilling depth, but in exponential proportion. In offshore drilling, a platform three times as deep costs about 10 times as much. For drilling, the proportion may vary but essentially we should expect the square of the increase in depth, which easily becomes prohibitive in dollar terms. This is compounded by the energy cost of energy.

The energy cost of energy has been low so far, hence generally overlooked. Crude oil from primary sources costs about 6 percent of its heat value to extract, while for petroleum refinery products the energy cost was on the order of 22 percent. Most of the tertiary oil is heavy, and with heavy oil, the energy cost goes up. In a news story from California (summer of 1979), heavy oil at modest depth used up one-third of its own output to generate the steam needed to extract the heavy oil. The cost of the operation must then be recovered from selling only two-thirds of the output, that is, about 50 percent higher than if the energy cost of extraction had been low. At greater depths, net yield will be even smaller proportions of gross yield and the capital cost per unit of net yield goes up rapidly. At some depth, the oil cost of oil will reach 100 percent (the "absolute margin"), and hence no price could render the case profitable.[§]

For the sake of argument we could investigate whether the energy cost of heavy oil could be obtained from sources other than crude oil. In Venezuela a scheme is reported to extract heavy oil by using electricity which may be generated cheaply from waterfalls larger than the country otherwise can use in full. In the United States, no similarly cheap energy source comes to mind. The likely way out might be to use coal to generate the steam and the chemicals and all the other production inputs in petroleum extraction. At the depths where most of the heavy oil is lodged, the coal used in this way would likely be so much that it would in fact be cheaper to convert the coal to oil or fuel alcohol rather than using it to extract heavy oil. The conclusion still stands: in economic terms, most of the tertiary oil is not there; counting on it in practical policy will court disaster.

Investments in Oil Production

The sluggish trend in petroleum production contrasts sharply with data on investments, recent and planned, in oil production. Table 2 gives selected numbers for the years 1978 through 1982, from a recent survey of US petroleum producers and processors.

The increments in investments for oil production — recent and planned — are remarkable in view of the small results achieved in domestic oil production in recent years and expected for 1981. Considering the share of old oilfields (including the Alaska North Slope) in current production, and the now rather limited direct US investments in foreign oil fields, it is evident that the capital/output ratio in physical terms in oil production is rising sharply. For 1982, a year for which advance estimates of investment plans may be on the low side, those estimates reflect expectations of a slowdown in other activities (capital needs in marketing, transportation, and refining would then be close to satisfied), but of continued vigorous expansion of capital outlays for petroleum production.

The industry source from which these estimates are cited calls the strong investment trend in petroleum "a bright spot on the economic horizon" (p. 55), pointing to this rate of investment being far in excess of the rate of inflation and also far ahead of the rather sluggish trend in other industries. What we

(continued on p. 7)

The Market Structure of the US Domestic Petroleum Industry

PHILLIP A. CARTWRIGHT

The availability of oil in the future, and the appropriate policies for rationing that oil which has been discovered continue to be topics for debate. In order to design and assess public policy relevant to these issues, policymakers must adopt certain assumptions about the nature of competition within the US petroleum industry. In the recent past, policy implemented in the US has been based on the view that the US petroleum industry is workably competitive. Presumably, this means that concentration ratios, profit levels, and the relative absence of barriers to entry are reasonably close approximations to those that would characterize a competitive industry. In this article some recent data are evaluated in order to assess the competitive nature of the US domestic petroleum industry.

The Importance of Market Structure in Designing Policy

Interest in the market structure characterizing a particular industry is based upon the belief that behavioral deviations from perfect competition result in costly market inefficiencies. In a perfectly competitive market, the presence of a large number of sellers, standardized products, and free entry guarantee that no single profit-maximizing firm can influence the market price of the product or the behavior of its competition. Alternatively stated, no single firm has market power.

The competitive market model is an idealized or polar case of firm behavior which is hypothesized to stand in contrast to the monopoly model in which a single firm constitutes the industry and is thus capable of exercising complete control over price. In monopolistic markets, the demand curve for the firm's output is downward sloping to the right. Price and quantity of the product in question are inversely related, that is, the only way the monopolist can sell more output is to lower the price. In order to maximize profits, the firm will restrict output and can do so successfully as by definition the monopolist is the only seller in the market and the product being produced has no substitutes.

Few industries can be classified as being perfectly competitive or monopolistic. For the most part, industries are characterized by a structure located somewhere along a continuum running between the two extremes. Variations in the significance of barriers to entry, cost conditions, and product differentiation lead to different market structures. When there are a few firms selling a similar product, and each firm recognizes its interdependence and ability to influence price, the environment is defined to be oligopolistic. It must be understood that the general oligopoly model does not impose any single mode of interactive behavior on the oligopolists. Firms may attempt to form collusive relationships or they may coexist in a noncooperative environment where each firm attempts to capture the market share of the others. This latter form of behavior manifests itself as price or nonprice competition. Presumably, the fewer the number of firms, and the higher the level of market power possessed by each, the higher is the probability that attempts to collude in order to achieve monopoly profits will be successful.

It has been asserted that deviations from the perfectly competitive framework are likely to induce undesired costs on society. For example, these costs may be imposed in the form of higher market prices and a lower rate of technological progress. Various measures of market power have been employed to evaluate the relationship between the degree of competition in an industry and the performance of firms in that industry. The final word on the matter has yet to be put into print, and the purpose here is not to settle these issues. However, by evaluating (descriptively) the market structure of the US domestic petroleum industry, it is possible to gain some insight into where the industry should be classified along the continuum already mentioned.

An Analysis of Market Structure

Analysis of the US domestic petroleum industry is not a straightforward matter. There are at least four complications. First, the common industry is composed of a large number of firms falling into diverse size groups. These firms operate at one or more stages of production. Second, the industry has been regulated at various stages of production since 1935. This fact suggests that an analysis of industry structure which attempts to focus solely on the pricing policies of firms is of limited use. Third, it is generally held that there is no single national petroleum market. Rather, there are several regional markets. Fourth, the relationship of the US petroleum industry to that of the international market structure is highly complex. The first and second complications are given further consideration later.

The petroleum industry includes over 300,000 firms engaged in one or more of the following functions: (1) exploration and production; (2) gathering and crude purchasing; (3) transportation; (4) refining; and (5) marketing. There are 15 to 20 fully integrated firms in the US. Eight of these are listed in Table 1. In addition, there are over 20 firms considered to be semiintegrated, and there are thousands of small nonintegrated firms. The existence of so many firms is taken to indicate that barriers to entry are not significant at all stages of operation. Any attempt to describe the market structure of the domestic petroleum industry is complicated by the possibility that a firm's market power is likely to vary depending upon the stage of production and upon the regional market under consideration. Nevertheless, it is assumed that a basic understanding of the nature of competition within the industry can be achieved by evaluating the relative positions of the largest firms in the industry, that is, of those firms deemed most likely to

TABLE 1. US Petroleum Industry; Production-Related Data for Top 8 Firms

Firm	Total assets, industry rank	Domestic production crude oil 1,000 bbl/d	Domestic production, % of total US domestic production	Self-sufficiency
Exxon				
1979	1	791	9.3	59.9
1978	1	829	9.5	58.1
Mobil				
1979	2	321	3.8	40.3
1978	2	320	3.7	40.6
Texaco				
1979	3	526	6.2	53.4
1978	3	582	6.7	58.4
Standard of CA				
1979	4	344	4.0	30.8
1978	4	394	4.5	35.1
Gulf				
1979	5	382	4.5	42.5
1978	5	306	3.5	45.6
Standard of IN				
1979	6	494	5.8	47.9
1978	6	525	6.0	47.1
Shell				
1979	7	481	5.6	45.1
1978	8	497	5.7	43.7
Atlantic Richfield				
1979	8	538	6.3	65.0
1978	7	527	6.1	65.0
Total 8 firms 1979	-	3,876	45.5	
1978		3,980	45.7	

Source: *National Petroleum News, Factbook Edition*, 1980.

[a] Total domestic production as a percent of total domestic refinery runs.

have a significant level of market power relative to the other firms in the industry.

Regulation of the petroleum industry prior to the OPEC embargo in 1973, was largely confined to prorationing at the state level and to price restrictions imposed by the Economic Stabilization Program.

On 27 November 1973, Congress passed the Emergency Petroleum Allocation Act (EPAA), and in 1975 the Energy Policy and Conservation Act (EPCA) was approved. A discussion of the complex regulatory structures imposed by these documents and their impacts on the industry is beyond the immediate scope of this paper.

TABLE 2. Market Share of US Gasoline Market

Firm	1973	1974	1975	1976	1977	1978	1979
Exxon	7.62	7.38	7.10	7.10	7.14	7.28	7.65
Mobil	6.36	6.53	6.56	6.02	5.80	5.55	5.78
Texaco	8.09	8.19	7.94	7.48	7.11	6.75	6.01
Standard of CA	4.79	4.90	4.58	4.68	4.75	4.76	5.30
Gulf	6.73	6.55	6.27	6.07	5.91	5.83	6.36
Standard of IN	6.99	6.98	7.17	7.15	7.30	7.70	7.48
Shell	7.52	7.42	7.00	7.26	7.53	7.71	7.30
Atlantic Richfield	4.41	3.99	3.90	4.00	3.85	3.79	3.89
Total 8 firms	52.51	51.94	50.56	49.76	49.39	49.37	49.77
Total integrated firms[a]	70.11	68.05	66.98	68.00	67.46	67.63	67.81

Source: *National Petroleum News, Factbook Edition*, various issues.

[a] In 1979, 17 firms were classified as being fully integrated.

However, the following facts serve to indicate the extent of the difficulty encountered in attempting to evaluate the pricing policies of firms during the 1970s.

Under the EPAA, controls were placed on the price of oil that was produced at rates up to those in effect in 1972. The production below the base year rate was defined as old oil. Any old oil produced in excess of 1972 production levels was defined as new oil. The price of new oil was not controlled. To provide production incentives, for each barrel of new oil produced, one barrel of old oil could be released or freed from price controls.

The EPCA brought the price of new oil under control although at a higher price than that permitted for old oil. The released oil provision was eliminated, but oil produced from wells producing less than 10 barrels per day was exempted from controls. New production categories were established to replace those specified by EPAA. EPCA defined production as being upper-tier or lower-tier.

In addition to those controls on price, in 1974 the Federal Energy Administration established the entitlements program. Under this plan, the average cost of crude oil to all refiners was equalized. The program was implemented to remove the competitive disadvantage faced by refiners having a greater-than-average proportion of high-cost upper-tier oil. Smaller refiners were favored by the program so that they might compete more effectively against the larger companies. It is apparent that such controls on both input and output prices of the industry at various stages of production preclude the possibility that a meaningful analysis of the market structure can be carried out by focusing solely upon pricing policies.

Table 2 shows data for the eight leading fully integrated petroleum companies in the US ranked by asset size. The second and third columns show data for average domestic production and the percentage of total domestic production of crude oil for the years 1978 and 1979. It is important to note that no single firm produced more than 9.5 percent of total domestic production in either year. Together, the eight firms listed produced less than one-half of the total. One must be somewhat cautious in interpreting these figures as not all of US domestic consumption is serviced by domestic production. In addition to these facts, the data in column (4) show that no firm was self-sufficient in

TABLE 3. Relative Performance of Major Manufacturing Industries

1978-77 changes in profits

Industry medians	% increase
Metal manufacturing	50.2%
Textiles, vinyl flooring	31.3
Office equipment (includes computers)	31.0
Measuring, scientific & photo equip.	27.3
Aerospace	26.9
Publishing, printing	23.9

(Petroleum refining ranked 21st with an increase of 12%.)

Return on sales

Industry medians	% growth	
	1978	1977
Broadcasting & motion pictures	9.6%	7.9%
Pharmaceuticals	8.7	7.5
Publishing, printing	8.4	7.4
Mining & crude production	8.1	9.0
Office equipment (includes computers)	7.9	5.7
Measuring, scientific & photo equip.	7.3	7.8
All industries	4.8%	4.6%

(Petroleum refining ranked 15th with 4.7% in 1978 and 4.5% in 1977.)

Return on stockholders' equity

Industry medians	% growth	
	1978	1977
Broadcasting & motion pictures	21.6%	22.2%
Pharmaceuticals	17.6	16.7
Soaps, cosmetics	16.7	16.5
Shipbuilding, railroad & transpt.	15.9	15.4
Publishing, printing	15.8	14.8
Tobacco	15.8	15.3
All industries	14.3%	13.5%

(Petroleum refining ranked 17th with 13.4% in 1978 and 13.1% in 1977.)

Source: *National Petroleum News, Factbook Edition*, 1980.

the sense of fully supporting own-firm refinery runs with own-firm domestic production. The extent to which these firms fall short of self-sufficiency lends a considerable level of empirical support to the hypothesis that the domestic market for crude oil is competitive.

The data in Table 2 show gasoline market shares of the eight firms considered previously as well as the total market share controlled by all fully integrated firms. Over the seven-year period shown, the highest percentage of the total market captured was obtained by Texaco, which had a market share of 8.19 percent in 1974. In 1979, the largest percentage of the market was held by Exxon, which controlled 7.65 percent of the total. Over the seven-year period, the total market share held by the eight firms shown has been approximately 50 percent and that held by all fully integrated firms has fluctuated around 68 percent. These concentration or market share ratios are below those computed for other manufacturing industries, for example, motor vehicles and car bodies and telephone and telegraph apparatus. These data clearly reveal the considerable extent to which partially integrated and nonintegrated firms serve the market. It is also of interest to note that the data exhibit instability between leading firms. For example, while Texaco was ranked first in 1973, the percentage of market share held for the same firm declined to fifth in 1979.

The data presented in Table 3 are intended to provide an indication of how the performance of the petroleum industry has compared with other industries in the manufacturing sector. It is interesting that crude production ranked in the top six industries in only one of the categories shown, that is, return on sales, while petroleum refining did not rank in the top 10.

The data considered thus far do not indicate that firms in the US petroleum industry enjoy systematic market power. A second area of concern to policymakers is the charge that the Outer Continental Shelf lease sale market is not workably competitive. A recent study supported by the US Geological Survey and prepared by Walter J. Mead and Philip E. Sorenson has focused on this charge and their results warrant attention.

The oil and gas resources of the Outer Continental Shelf (OCS) represent an important part of the total value of all publicly owned assets held by the US. The sale of OCS oil and gas leases is a source of direct revenue to the federal government. Through 1978, the leases provided over $28.3 billion in direct revenue. In addition, over the same time period, sales of the OCS leases resulted in $40.5 billion in gross production value.

Under the provisions of the Outer Continental Shelf Lands Act established by Congress in 1953, the oil and gas resources of the OCS are managed by the Department of the Interior (DOI). The authority of the DOI was reconfirmed in the 1978 Amendments to the OCS Lands Act. Among the explicit goals of the DOI in its management of the OCS resources is the preservation, protection, and development of oil and gas resources in a manner which is consistent with the need to make these resources available to meet the nation's energy needs as rapidly as possible and to pursue and maintain free enterprise competition.

Mead and Sorenson have studied 1,223 leases issued in 17 lease sales in the Gulf of Mexico over the period 1954–69. For all 1,223 leases the average internal rate of return was 11.4 percent on a before tax basis. In contrast, the average internal rate of return for all manufacturing corporations during the 1954–76 period was 19.8 percent on the before-tax basis. Assuming that a 20 percent before-tax rate of return is a typical yield for investments having risks comparable with that associated with oil and gas lease investment, Mead and Sorenson find that the federal government's share in net economic rent yielded by the leases is well over 200 percent. Thus, the net revenue received by the federal government exceeded that which would have been paid in a competitive lease market by a multiple of nearly two and one-half.

These results are significant for two reasons. First, they show that the federal government has received net revenue for OCS leases in excess of fair market value. Second, the low internal rate of return indicates that

TABLE 4. Joint Venture-Bidding for Winning Bids, 1954-73.

Number of firms in combine	Number of bids	Percent nonmajors
1	1,121	49
2	356	24
3	145	43
4	206	46
5 and over	69	77
Overall	1,897	44

Source: E. Erikson and R. M. Spann, "The US Petroleum Industry," in *The Energy Question: An International Failure of Policy*, Vol. 2 (Toronto: University of Toronto Press, 1974)

the lease sale market is quite competitive. That is, it is generally asserted that anticompetitive behavior is inconsistent with below-average rates of return on investment.

Firms may engage in joint bidding ventures, and these sales have been viewed as evidence of a collusive pattern in the petroleum industry. According to those who support the anticompetitive position, joint bidding tends to reduce the number of bidders. Statistical evidence supporting this position is scarce. The evidence seems to be far more consistent with the suggestion that joint bidding is a vehicle for pooling risks and enhances the entry into offshore ventures by smaller firms.

Mead and Sorenson have found that there is no relationship between firm size and average number of bidders competing for each lease. In addition, there is no evidence that the large firms are more successful than smaller firms in winning productive relative to unproductive leases. Table 4 lends support to these conclusions. The data show percentage bids in each bidding category that were made by firms or groups of firms which were not among the top eight. The table indicates that almost 50 percent of the winning bids were made by firms or groups of firms which were not among the majors. Further, nearly 50 percent of the single-firm winning bids were made by nonmajors. This evidence is not consistent with the assertion that major firms enforce collusive bidding arrangements through their participation in joint ventures.

To summarize, the foregoing facts suggest that the structure of the US petroleum industry must be characterized as falling between that specified by perfect competition and that implied by the simplest model of oligopoly. The domestic industry is not oligopolistic, if by oligopoly we mean that a few sellers of a homogeneous product erect significant barriers to entry and completely dominate all stages of production. On the contrary, there are a very large number of firms operating at different stages of production, receiving revenues which are determined by factors other than market supply and demand, that is, government regulatory constraints; nor is the industry perfectly competitive. This model demands that no single firm can have any market power, and it is clear that there is a group of firms capable of exercising some influence over the market. The magnitude of this power is not clear and measurement is complicated by all four of the factors cited earlier. Acting collusively these firms would have an inordinate and perhaps unacceptable amount of influence in the markets for petroleum products. But the data on self-sufficiency and gasoline market share provide evidence lending support to the proposition that the few firms listed actively compete among themselves for shares of the total market. The accumulated evidence seems to support the hypothesis that the market structure of the US domestic petroleum industry is segmented in the sense of being divided between groups of fully integrated and partly integrated or nonintegrated firms. In general, these firms seem to exhibit noncooperative economic behavior within and between groups. It seems fair to conclude that the most recent data are supportive of the proposition that the US petroleum industry is workably competitive.

OIL CRISIS (continued from p. 3)

see here is in fact a somber warning: intensive oil development in this country will not only mean much more expensive energy, but specifically a sharply increased drain on capital resources, aggravating the shortage of capital necessary for expansion and modernization (for higher productivity) outside the energy complex. Such expansion in oil production also competes with other energy investments and may seriously sidetrack the necessary development of replacement sources.

A Man-Made Crisis

The impending oil crisis is man-made in the sense that it could have been avoided. A synthetic-oil program (coal liquefaction and shale oil) was started by the federal government in the 1940s, then brought to a halt in 1953. Concern for long-range resource management was deliberately shelved. The Eisenhower Administration apparently trusted the conjecture that nuclear electricity would become "too cheap to meter," which would have been cheap enough to solve all other energy problems. Such illusions favored an energy-intensive economy. High reliance on automotive transportation was "cast in concrete" by the way the cities expanded. Urban freeways are now recognized as a mistake but mistakes of this kind and caliber are not corrected as easily as they are made. Nor were the outcomes due to market failures only: superhighways and nuclear power were fostered by the federal government, not directly by private enterprise.

Yet the lessons from the policy mistakes of the 1950s appear hard to learn. Our energy future should not be based on conjecture, nor can it be left entirely to unguided market forces. Industry should not be expected to shoulder all the risks of choosing between the many paths of energy development now on the agenda. The oil companies have more to lose and less to gain, than the country as a whole, from a switch away from the inherited emphasis on petroleum. Left to their own devices, they can only be expected to cling to what they already have. If the myth of abundant available tertiary oil somehow gets the appearance of success, even for a few years, this could further aggravate the oil shortfall when it comes, both by exhaust- (continued on p. 11)

Comparative Economic Data for Selected Illinois Cities, January 1981

	Construction activity				Electric power consumption (000,000 kwh)		Employment (000)		Estimated work force unemployed (percent)	
	Nonresidential buildings		Residential buildings							
	Jan. 1981	Jan. 1980	Jan. 1981	Jan. 1980	Jan. 1981	% change from Jan. 1980	Jan. 1981	% change from Jan. 1980	Jan. 1981	Jan. 1980
ILLINOIS	530	659	302	527	3,461.0[a]	-0.2	4,889.0	-2.3	9.9	7.8
NORTHERN ILLINOIS										
Chicago	24	30	14	8	1,666.3	+0.3	3,113.0[b]	-1.3	9.2[b]	7.1[b]
Aurora	5	4	3	1	135.2	+9.3	35.7	-1.1	12.3	7.1
Elgin	3	1	8	6	94.7	+8.0	27.5	-1.4	11.4	8.5
Joliet	3	4	2	0	359.7	-5.3	34.1	-1.5	15.2	13.4
Kankakee	1	0	0	3	79.6[c]	+1.4	35.6[b]	-5.6	13.5[b]	11.4[b]
Rock Island-Moline	0	5	2	6	126.6[d]	+2.5	99.7[e]	-3.9	9.6[e]	6.5[e]
Rockford	7	3	20	13	157.2	+0.6	114.2[b]	-10.6	12.7[b]	8.4[b]
CENTRAL ILLINOIS										
Bloomington-Normal	11	7	5	5	50.3	+5.7	53.6[b]	-4.8	8.2[b]	6.3[b]
Champaign-Urbana	1	8	3	7	60.2	+12.9	77.1[b]	+3.4	6.9[b]	6.0[b]
Danville	4	7	1	4	46.1	+3.4	15.4	-7.8	16.8	15.3
Decatur	3	4	4	6	141.3	+7.3	52.4[b]	-2.8	13.1[b]	11.0[b]
Galesburg	0	0	0	2	29.0[c]	-7.3	12.7	-9.9	16.6	14.0
Peoria	10	3	5	2	187.0	-0.1	153.0[b]	-5.3	10.8[b]	8.2[b]
Quincy	7	8	3	2	43.3	-1.8	17.1	-6.0	11.2	7.9
Springfield	2	8	1	3	116.5	+1.9	87.8[b]	-3.4	8.4[b]	8.4[b]
SOUTHERN ILLINOIS										
East St. Louis	0	0	0	0	23.8	+0.4	21.4	-2.3	12.7	13.1
Alton	3	4	0	4	79.0	-2.5	13.4	-2.2	12.6	12.1
Belleville	1	2	0	2	27.4	+4.2	17.0	-1.7	15.5	13.2
Carbondale-Murphysboro	8	0	0	0	37.8	+9.9	25.7[f]	+4.5	11.2[f]	10.3[f]

[a] Total for cities listed. [b] Data for Standard Metropolitan Statistical Area. [c] Includes immediately surrounding territory. [d] Includes East Moline. [e] Data for Illinois part of Davenport-Rock Island-Moline SMSA. [f] Data for Carbondale-Murphysboro LMA. n.a. not available.

The 1981 Coal Negotiations: A Historical Perspective
PART I: The First Seventy Years

JOHN F. SCHNELL

This article examines the 1981 national bituminous coal negotiations between the United Mine Workers of America (UMW) and the Bituminous Coal Operators' Association (BCOA). The purpose is to put the current contract talks in their proper place as an event in the evolution of collective bargaining in the coal industry. By examining the history of labor relations in coal, one can better understand the current bargaining structure, the outcome of these talks, and the prospects for the future of this once prominent industry, revived recently by the nation's reluctant appetite for imported oil.

The bituminous coal industry became important in 1890, producing over 11 million tons. In January of that year the UMW, reorganized from the National Progressive Union, was granted an industrial union charter from the American Federation of Labor (AFL). The tumultuous history of labor relations in the coal industry can be divided into three distinct stages. In Stage I, the period 1890–1950, the industry was competitive and the collective bargaining structure was decentralized. The union's policies were directed toward eliminating interregional competition. Legislative support for these policies was instrumental in their success. The period from 1950 to the early 1960s, Stage II, was characterized by stable, cooperative, and sometimes collusive labor relations. No national strikes occurred during this period. The union and the major producers, working through a new centralized bargaining structure, attempted to consolidate their industry. Mechanization of the mines was their tool. In Stage III, from the early 1960s to the present, the bargaining structure changed again, as a result perhaps of fundamental changes in the structure of the coal industry. The oil industry was going to diversify into coal.

The current national contract between the UMW and the BCOA expires on March 27. To avoid a strike, a tentative agreement must be reached by March 17 in order to allow 10 days for ratification by the UMW's rank and file. The last contract was reached after the longest continuous strike in the history of the bituminous coal industry. The strike began at midnight on 6 December 1977 and lasted for 110 days. At the time of this writing a tentative agreement has been reached. The character of these negotiations and those to come in the future can only be evaluated from a historical perspective. Coal production is inextricably linked to coal labor relations. Coal may provide the only near-term, viable alternative to imported oil.

Part I of this article reports on the first two stages in the history of coal labor relations. Part II, in a subsequent issue of the *Illinois Business Review*, analyzes the events of Stage III which shaped the character and outcomes of the 1977–78 negotiations and which will influence the current talks.

STAGE I: Structural Development

When the coal industry developed, it was generally competitive. It had a large number of small firms, entry and exit was relatively easy, and it sold a relatively homogeneous product. Demand for coal fluctuated widely. Mine labor was highly immobile. The specialized skills and physical and cultural isolation characteristic of coal miners meant that intractable pools of unemployment could result from the many downturns in coal demand as operators would attempt to make reductions in their largest cost category — labor — when prices tumbled.

Price competition in the industry in the early 20th century was based on labor and transportation cost differentials. Southern operators, in addition to enjoying preferential freight rates by establishing agreements with the railroads to have coal shipped at high volume, were able to pay lower wages to their nonunion labor. John L. Lewis unsuccessfully attacked the Interstate Commerce Commission for setting rates lower for southern than for northern coal. Production shifted from the unionized north to the nonunionized south. The union and the northern operators both had a stake in imposing an industry-wide minimum labor cost level.

The UMW made an effort to stabilize the coal industry by encouraging the introduction of labor-replacing machinery in order to force out low-cost, hard-to-organize, small producers. This was viewed as the only alternative to wage cutting. The union believed that excess capacity was at the heart of the industry's problems. It wanted to establish an industry in which only efficient, mechanized, and profitable firms would survive and their employees would be highly paid. To this end, its policy was one of ever increasing wage rates which were rigid downward with a commensurate reduction in mines and miners. John L. Lewis believed that any "concession of wage reductions" would violate "natural economic laws" and enable "the unfit to hold out a little longer." But this strategy became untenable in the face of intense price competition. Many mines went out of business and union membership fell from an average of almost 446,000 in 1923 to approximately 150,000 in 1932. By 1933 the union had been forced to revise downward many of its contracts.

Interregional wage disparities had widened. But the UMW was rejuvenated in its attempt to eliminate these differences by what it interpreted as the prounionization philosophy of Section 7a of the National Industrial Recovery Act (NIRA). Lewis interpreted the "right-of-labor-to-organize" clause of Section 7 to mean that the government supported union organizing. Organizers swarmed into the coal fields where, not long before, troops had marched against union miners. They proclaimed an insolent rejoinder: "The President wants you to join. Your government says 'Join the United Mine

Workers.'" The operators were comforted by the belief that the NIRA would be declared unconstitutional, as it was in 1936, when their antiunion defenses broke down in the face of the large number of miners eager to join the UMW. The declaration of unconstitutionality came too late. The UMW was able to claim 400,000 members at the 1934 AFL convention and the first nation-wide coal agreement was signed in 1941. The north-south wage differentials were virtually eliminated by 1945. Nine out of 10 underground mines were under a single union's contract and the UMW claimed a membership of 600,000. The union had established industry-wide wage uniformity, effectively reducing interregional price competition.

The union had become the stabilizing force in the coal industry, and when the business cycle again turned against the demand for coal in the fall of 1948, the union acted in the spirit of monopoly by meeting the drop in coal demand with supply restriction. Lewis described the strike called in 1949 as "a brief stabilizing period of inaction." Producers were pleased. Rather than being protracted, strikes during the latter part of this stage were short and industry-wide, designed partly to draw down price-eroding stockpiles. The union enacted other production control schemes which amounted to a "share-the-work, divide-the-orders" plan to bolster prices and to keep most of its members working, at least part-time.

The issues during this stage were marketwide. A consolidated bargaining structure with centralized decision-making authority, exemplified by Lewis's autocratic rule, was necessary. There was an economic rationale for the subversion of local union autonomy to central authority: a single-wage scale and the power to initiate industry-wide strike action was necessary to prevent the adverse interregional competition of the 1920s and early 1930s and to keep weaker districts from contracting below the national wage scale. The UMW wanted to prevent independent and disconnected action by competitive producers selling in a national market. The mechanism by which to obtain market stability was a consolidated bargaining structure with centralized power.

STAGE II: Structural Stability and Cooperation

Unlike the 60 years of Stage I, this period was characterized by relatively stable labor-management relations. On 3 March 1950, after the country was down to a two-week supply of coal as a result of a massive strike, President Truman went to Congress to request authorization to seize the mines. Neither the operators nor the union were willing to accept this form of intervention. On March 6 the last strike engineered by John L. Lewis ended, marking the beginning of a new era in coal labor relations. The National Bituminous Coal Wage Agreement of 1950 ushered in a decade of calculated, stable peace.

Just as Lewis had become a dominant force in coal labor, a personality was to emerge from the ranks of coal management to dominate the industry during the 1950s. George Love, founder of Consolidation Coal Company (Consol), then the world's largest commercial coal producer and the company whose current president is the chief negotiator for the industry in the 1981 talks, was determined not to repeat the government-induced settlement of March 1950. He viewed this as a result of the historical antipathy which characterized labor-management relations in his industry. Love was able to establish an alliance between the northern operators and the steel industry's wholly-owned captive mines for the purpose of representing both groups in future negotiations with the UMW. The BCOA was formed and controlled by Love. He recognized that strikes were ruinous and should be avoided; the industry and the union should be able to work together to solve mutual problems without interference from the government or the public.

Lewis must have become convinced that the operators now shared a similar conception of the problems in the coal industry and that this new structure would be one which would allow, for the first time, unified labor-management action to ameliorate these problems. The abundance of small coal operators still presented, as Lewis stated, "a drag on the system." And with every strike that interrupted supply and made coal appear as a less reliable fuel — a situation which confronts the industry today, clouding the current contract talks — oil and gas made competitive inroads.

During this period the government, not in its legislative role of the past, but as a consumer, came to influence the structure of the industry. In 1948 the Tennessee Valley Authority (TVA) constructed a number of large coal-fired electric power facilities. It purchased coal on a long-term, lowest-bid contractual basis without regard for the volume of coal each operator could supply. This purchasing policy fostered the rise of hundreds of small mines in the traditionally antiunion states of Kentucky and Tennessee. By operating on a nonunion basis, these "dog-holes," as they became known, could pay the union wage scale and still maintain a competitive advantage by saving payments into the UMW Welfare and Retirement Fund. (It is the elimination of the benefit program financed by royalties on coal production at union mines and its replacement by a system of separate private pension plans which is the major issue in the current negotiations.) Without the union to police safety practices, these operators could further reduce production costs. These mines were able to gain a sizable share of the nation's coal market. By 1955 the UMW's membership had been cut in half. The union's hold on southern Appalachia, its organizational base, had been broken.

Lewis attempted to counter this trend. By increasing labor productivity, further automation of the mines could help the larger union producers become price-competitive. But unlike the previous stage, the major coal companies were allowed a free hand in mechanizing their operations. The introduction of machinery would not be tied to normal workforce attrition. The union even made its financial resources available to the large operators by encouraging them to borrow for purposes of modernization from the UMW-controlled National Bank of Washington.

With the drive to automate in high gear, small mines closed and large mines laid off workers; 300,000 men lost their jobs. The recession of the late 1950s exacerbated the swelling pocket of unemployment in Appalachia. In fact, the mounting pool of cheap unemployed labor allowed the small mines, which had been forced to close by the terms of an industrywide contract and the productivity advantages of the union-encouraged mechanization program, to reopen and compete for the growing demand of the electric power industry.

The union resorted to "sweetheart" contracts in order to try to maintain some semblance of organizational control in southern Appalachia. In these collusive arrangements the union and management agreed to ignore certain terms of the national contract; either wages were cut or payments into the Welfare and Retirement Fund were reduced. Rather than stop the growth of nonunion mining, these clandestine agreements engendered rank-and-file bitterness. The seed of internal union dissension had been planted, later to grow into a call for decentralized decision-making.

The UMW and the largest coal producer, Consol, resorted to more explicit practices in an attempt to consolidate the industry. A federal grand jury rendered a verdict in 1968 against Consol and the UMW for conspiracy since 1950 to create a monopoly of the soft-coal industry in direct violation of the Sherman Antitrust Act. In 1958 the UMW and the BCOA had included a "protective wage clause" in the national agreement. The clause specifically prohibited the UMW from negotiating any contract with any individual company or group and members of the BCOA from subcontracting with nonunion companies. Many smaller producers, who were often nonunion, had to market their coal through the distribution system of the larger, mostly union, producers. Firms who failed to sign "Certificates of Compliance" could expect to have their coal boycotted.

A measure more extreme than sweetheart contracts was undertaken by the power structure in coal in the 1950s. John L. Lewis loaned financier Cyrus Eaton some $6 million from the National Bank of Washington and the UMW treasury so that Eaton could gain controlling interest in West Kentucky Coal Company, a major nonunion employer. With additional union funds, Eaton merged West Kentucky with Nashville Coal Company, another nonunion operator. Once Eaton became West Kentucky's board chairman, the company signed a UMW contract.

Some $25 million were lent to West Kentucky by the UMW, and by virtue of this financial injection for consolidation and modernization, West Kentucky was able to lower its bids for prized TVA contracts. West Kentucky's prices dropped from $3.70 per ton in 1954 to $2.90 per ton in 1964, and its share of TVA business increased during this period from 9.6 to 16.2 percent. When combining the other coal properties controlled by Eaton and the union with West Kentucky, the total output made the Eaton-Lewis combine the third largest bituminous coal producer in the country. (When this venture became known, the UMW cancelled its loans to West Kentucky at a loss of $8 million and in 1963 sold its interest to Island Creek Coal Company.) The effect, and perhaps the goal, of these arrangements was to drive small coal operators out of business further, which worsened mineworker unemployment.

Finally, two other strategies were used by the cooperative labor-management structure of this stage to concentrate the coal market and eliminate nonunion competition. First, the BCOA worked with the union in the 1950s to secure a stricter mine safety law. The law was, of course, intended to reduce mine accidents, but it was also intended to impose the same costly safety standards on the smaller, nonunionized producers. The goal was to drive these low-cost firms out of business. Second, as hundreds of mines went nonunion in the early 1960s, the union withdrew all welfare cards establishing miners' rights to benefits from the Welfare and Retirement Fund, from miners working for companies that were not paying in royalties, regardless of their years of service at union mines. In February 1965 the fund's trustees lowered the qualifying age to encourage older unemployed miners to retire rather than accept jobs at nonunion mines.

Relations were indeed harmonious between the UMW and the BCOA in Stage II. The union gave its approval to an increased rate of mechanization. It firmly believed that this policy was necessary to save the coal industry. But the strategy was improvident; the number of UMW miners fell from 416,000 in 1950 to 180,000 in 1959. Contract terms deteriorated. Wages were high (as was productivity) for those mines still working, but fringe benefits and safe mining conditions were sacrificed. The policies that had brought a stability to the industry that it had not experienced in a decade also brought growing dissension among the rank and file and a continuing erosion of the union's organizational base in southern Appalachia.

In a subsequent issue of this *Review*, "Part II: Structural Change in the 1960s and 1970s."

OIL CRISIS (continued from p. 7)

ing remaining domestic oil reserves faster and by delaying investment in replacement sources, and also by delaying the necessary reduction in final demand for liquid fuel.

The policy of the 1950s lost us the ease of transition which was then still possible. Inaction since the first OPEC oil price increase of 1973 has wasted precious time. The unsolved development problem now is how to secure enough capital formation in replacement energy sources before the oil crunch hits. Liquid-fuel policy must recognize the problem for what it is, emphasize reduction in final demand for transportation fuel as well as accelerate research, technology development, and capital formation in modernized energy industries. It is not even certain that the necessary investments can be brought together in time to meet the shortfall. Policy has to assume that success is still possible, but the production-radical policy path now adopted in Washington risks very much to lose what little time we still may have.

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Economic and Business Research
428 Commerce West, 1206 South Sixth Street
Champaign, Illinois 61820

MS JEANNE LONG
CONGRESSIONAL INFO SERVICE
7101 WISCONSIN AVE
WASHINGTON, DC 20014

Illinois Business Indexes

Item	Jan. 1981	Dec. 1980	Nov. 1980	Oct. 1980	Jan. 1980
Leading indicator (1969=100)	88.4	89.3	89.4	88.2	90.7
Coincident indicator (1969=100)	140.2	134.8	129.6	126.8	132.8
Employment-manufacturing (in thousands)	1,186.6	1,196.3	1,179.8	1,182.6	1,262.2
Average weekly hours-manufacturing	40.0	40.9	40.1	39.7	40.3
Weekly earnings-manufacturing	$342.00	$348.88	$338.44	$331.50	$307.89
Layoff rate-Chicago	1.2	0.8	0.7	0.8	0.7
Help wanted advertising-Chicago (1967=100)[1]	69.0	70.0	77.0	70.0	104.0
Help wanted advertising-St. Louis (1967=100)[1]	58.0	55.0	60.0	59.0	76.0
Ordinary life insurance sales (in millions)	n.a.	$2,015	$1,504	$1,711	$3,511
Retail sales (in millions)	n.a.	$5,059	$4,292	$4,213	$4,924
Coal production (in thousands of tons)	5,710	5,469	4,666	5,195	5,641
Petroleum production (in thousands of barrels)	2,000	1,865	1,808	1,975	1,981
Vendor performance (percent)	49.7	49.6	50.0	44.0	54.6
Building permits (in thousands)					
Residential housing units	.74	1.35	2.87	3.42	.95
Value of residential housing	$32,368	$58,297	$117,989	$138,070	$35,044
Value of nonresidential construction					
Industrial buildings	$11,458	$14,254	$20,721	$33,383	$26,212
Office, banks, and professional buildings	$21,410	$37,267	$49,777	$52,465	$29,490
Stores and other mercantile buildings	$5,668	$11,269	$17,309	$12,392	$18,713
Other	$10,545	$20,258	$60,167	$58,840	$25,264
Consumer price index					
North Central US	-	140.4	-	138.3	-
North Central/population more than 4,000,000	-	143.3	-	140.8	-
North Central/population 385,000 to 1,250,000	-	140.0	-	137.6	-
North Central/population 75,000 to 385,000	-	136.6	-	135.1	-
North Central/population less than 75,000	-	136.2	-	134.6	-
Chicago	258.9	260.3	259.9	253.7	230.3
St. Louis	255.7	-	253.8	-	232.7
Prices received by farmers	133.0	132.0	135.0	133.0	114.0
	1980:III	1980:II	1980:I	1979:IV	1979:III
Personal income (in millions)	$122,435	$118,161	$116,226	$112,317	$112,096

[1] Source: The Conference Board, *Help Wanted Advertising*, January 1981. n.a. not available.

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Changes in the Sources of Personal Income, by Industry, 1958–79

RUSSELL E. SMITH

An important characteristic of an economy is its industrial composition. An economy can specialize in agriculture, banking, retail trade, and so forth, relative to other industries. The industry mix can be relatively balanced or unbalanced and can change over time. An industry's share in an economy can be measured by the proportion of total output of the economy attributable to the industry, or by its share of total employment, or by the percentage of the income of households and persons that is generated by the industry.

This study uses recent personal income data for the 21-year period, 1958–79, to identify changes in the industrial composition of the Illinois economy and to compare these changes with the same data for the US as a whole. First, changes in the level of real income by industry division will be considered, followed by a discussion of changes in the percentage share distribution of income by industry. Then the analysis will be repeated on a more detailed level within selected growing and declining industry divisions.

Personal income is an indicator of economic and social welfare. It measures the payments made to households in exchange for the use of "factors of production," such as land, labor, and capital, which are owned by households and used in the production process. Payments to capital and land include proprietors' income, rents, dividends paid on stocks, and interest received on loaned funds. Payments to labor include wages, salaries, and other labor income. Personal income also includes transfer payments received by households, such as social insurance and retirement program benefits. It excludes the portion of income paid in social security taxes, but includes the income that will be paid out as income taxes.

The personal income definition used here is total labor and proprietors' income, by industry of source. Excluded are interest, dividends, and transfer payments. The largest industry category is the division. Examples of divisions are agriculture; manufacturing; finance, insurance, and real estate; and services. Divisions are divided into major groups such as stone, clay, and glass products; banking; and medical and other health services. Major groups are further divided into groups, which are further divided into industries. The following discussion will consider the distribution of labor and proprietors' income by industry source, first at the division level, and then at the major group level for some divisions.

The basic data are presented in Table 1 (pages 4 and 5 of this issue). Data are reported in current dollars for the years 1958, 1963, 1969, 1974, and 1979 for over 90 industry categories. T[illegible]urce is a series, released by the US Commerce Department's Bureau of Economic Analysis, which provides data for all 21 years of the 1958–79 period. Current-year dollar figures can be converted to constant 1958 dollars for the five years in the table by dividing the numbers by the deflator times 100. The GNP deflators are found in the footnote at the bottom of the table. The index value for 1958 is 100 and the value for 1979 is 250.47. Therefore, 1979 current dollars can be converted to 1958 dollars by dividing by 2.5047. This means that in money terms prices in 1979 were generally two-and-one-half times higher than prices in 1958 for the same goods and services.

Nominal labor and proprietors' income in Illinois grew from $20,203.9 million in 1958 to $85,268.0 million in 1979. After adjusting for inflation, 1979 income was $34,043.2 million in 1958 dollars, which is a 68.4 percent gain in real income over the period. Percentage change computations are found in the third column of Table 2 (page 6) for Illinois and in the sixth column for the US.

Figures for the US show current dollar labor and proprietors' income of $294,904.6 million in 1958 and $1,488,671.0 million in 1979. Money income quintupled over the period. However, adjusting for inflation, real income only doubled with a gain of just 101.5 percent, as is noted in the top portion of Table 2. The US/Illinois relative change ratio found in the seventh column shows that overall income growth in the US was 1.48 times the growth in Illinois. This means that US percentage growth was 50 percent greater than Illinois percentage growth, or that Illinois percentage growth was only two-thirds of US percentage growth.

The top portion of Table 2 shows the level of labor and proprietors' income by industry division for the years 1958 and 1979 for Illinois and the US, along with percentage changes between the two years and the ratio of the percentage changes, called the relative change ratio, for each industry. The lower portion of Table 2 shows the percentage share of total income attributable to each industry in Illinois and the US, and percentage changes in the percentage shares. The seventh column notes in which area an industry's share grew the greater percentage, or declined the lesser percentage.

All industries, except the military in Illinois, grew in real terms over the period. Also, in all cases income in the US grew a greater percentage than in Illinois in terms of real levels. This comes as no great surpirse because income grew at a 50 percent higher rate in the country than in the state.

In Illinois, industries with positive growth rates grew between 5.9 percent for farming to 167.9 percent for state and local government. Differential growth rates mean that industry share distribution will change also. For example, the share of farming declined from 4 percent to 2½ percent while the share of state and local government rose from 6.1 percent to 9.6 percent.

By taking the 68.4 percentage change for Illinois and the 101.5 percentage change for the US as weighted averages of all industries, it is possible to identify the industry divisions that grew more or less than the average in their region. If the percentage change in income level is greater than the average, then it is expected that there will be a positive change in share. If the percentage change in income level is less than average, then a loss in percentage share would be expected. Above-average changes in columns three and six at the top of Table 2 should have corresponding positive changes in columns three and six on the bottom portion of Table 2.

In Illinois, the following divisions grew more than the 68.4 percent average and experienced gains in share: agricultural services, etc.; mining; wholesale trade; finance, insurance, and real estate; services; government; and state and local government. Divisions that grew at less than average rates were construction, muanfacturing (including both durable and nondurable goods), transportation and public utilities, retail trade, and the civilian portion of the federal government. The federal military suffered absolute real losses in income in Illinois. Although they are in the above-average growth category, agricultural services, etc., and mining show no change in share. This is due to their closeness to the average rate of change, combined with the effects of rounding.

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Director, ROBERT W. RESEK; *Assistant to the Director,* WILLIAM R. BRYAN; *Editor,* NELLE WAGNER; *Research Assistants,* THOMAS B. BRYAN, PHILLIP A. CARTWRIGHT, JOHN F. SCHNELL, and RUSSELL E. SMITH.

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All industries that experienced above-average growth in Illinois experienced above-average growth in the US also. Similarly, most of those with below-average growth in Illinois had below-average growth and share losses in the US. The exception is the construction industry, which held its own with average real growth and a constant income share in the US. Conceivably the declining share of Illinois's construction industry is connected to the state's overall growth rate, which is below the national rate. Of note, also, are the declines in the shares of farming and retail trade in both areas. The slower growth in farm income may be illusory in that some farm income and consumption comes via capital gains rather than through income formally defined. The share decline for retail trade may result from less labor input relative to sales in the industry in conjunction with competitive pressures that allowed consumers, rather than the proprietors, to benefit from the gains in worker productivity.

Generally speaking, Illinois's share distribution has changed in accord with the national trends away from agriculture, manufacturing, and retail trade, and toward services, state and local government, and finance, insurance, and real estate. The seventh column in the lower part of Table 2 reports which region, between Illinois and the US, gained the most in share, or lost the least for the various industry divisions. Among the growing industries, Illinois led the US with higher growth rates in share in wholesale trade; in finance, insurance, and real estate; and in state and local government. Illinois followed the national pattern in the services; agricultural services, etc.; and mining divisions.

In industries with declining shares of income, Illinois faced larger declines in manufacturing generally; in durable goods manufacturing; in transportation and public utilities; in retail trade; and in the civilian federal government. The US experienced stronger declines in farm income; in nondurable goods manufacturing; and in the military portion of the federal government.

All in all, there appears to be a national shift in economic activity, as measured by the industry share distribution of personal income, away from agriculture and manufacturing, toward services, state and local government, and finance, insurance, and real estate. Illinois is a full participant in this trend and appears to lead it in the growing areas of state and local government; and finance, insurance, and real estate; and in the declining areas of durable goods manufacturing, transportation and public utilities, and retail trade. To highlight this trend further, the following sections will analyze income level and share changes for the major groups in the declining manufacturing division and in the growing services and finance, insurance, and real estate divisions.

Level and percentage share distribution data for the major groups of the manufacturing division are found on Table 3 (see page 7). The table format is the same as that of Table 2. The percentage shares are percent of total income, not of income in the manufacturing division.

Manufacturing income grew in Illinois by 48.6 percent while manufacturing in the US grew by 79.6 percent.

As both growth rates are below the averages for their regions, both experienced share declines, 11.6 percent in Illinois and 11.0 percent in the US, which are virtually identical. The common decline is more pronounced in nondurable goods and less pronounced in durable goods. In nondurable goods the share drop for the US is a little greater from a near identical base, 23.7 percent to 22.5 percent for Illinois. For durable goods the share drops are smaller, with the US holding its own better than Illinois, as its share decline was 1.7 percent compared with 5.6 percent in Illinois. However, because of its larger base, Illinois was still ahead as a producer of durable goods in 1979, with 20.3 percent of income attributable to that industry compared with 17.1 percent for the US.

When looking at the major industry groups within nondurable manufacturing, some are found to be increasing their share of income. In Illinois, paper, chemicals, and rubber and miscellaneous plastic products show rates of growth in real income above the state average of 68.4 percent. Of the three, only paper products is unable to translate the high growth rate into an increase in its income share, perhaps because of its low initial base. Nationally, only rubber and miscellaneous plastic products showed an above-average growth rate and the accompanying share gain. The three 0.0 percent growths in share rates become negative with less extreme rounding. The Illinois growth rate for rubber and miscellaneous plastic products exceeds the national rate, 66.7 percent to 50.0 percent.

Two Illinois industries experienced absolute declines in real income: apparel and other textile products, and leather and leather products. Leather products dropped nationally also, both in level and percentage share, although not as much as in Illinois. For food and kindred products and for printing and publishing, both areas reported near identical drops in share while petroleum in Illinois declined slightly in share (zero becomes negative with less severe rounding) compared with a marked decline for the US.

For nondurable goods as a whole, Illinois experienced the same general decline in the industries' share in income as the US. However, the decline of share for the US was more evenly spread across the component industry groups. In Illinois the behavior of the component industries was more diverse, with some growing substantially while others were victims of negative growth. Rubber and chemicals grew in share, and petroleum and coal products in Illinois had a relative gain by holding its own while the industry's US share fell off. Leather and apparel fell off more sharply in Illinois than in the US and more sharply than nondurable manufacturing as a whole in Illinois.

In durable goods manufacturing in Illinois above-average growth rates and share gains are noted for four industries: primary metals; machinery, except electrical; transport equipment, except motor vehicles; and motor vehicles. Positive growth rates, but with share declines, were noted for the other industries. In the US, with its smaller share decline in durable goods, four industries reported gains in share: machinery, except electrical, and motor vehicles are in common with Illinois. For both, the gain in the US is stronger than the gain in Illinois. US share gains in the face of Illinois declines are found in electric and electronic equipment, and in instruments and related products. Therefore, Illinois led with share gains, relative to the US, in primary metals and in transportation equipment, except motor vehicles. Among declining share industries, stronger share declines were observed in Illinois in lumber and wood products, fabricated metal products, and in stone, clay, and glass products, while stronger US share declines were seen in furniture and fixtures, and miscellaneous manufacturing.

Overall the results are mixed. In general the industries with share declines are those that use materials other than metal while those growing in income share are those that produce finished goods from metal. The US, too, did better in instruments, electrical and electronic: machinery, and motor vehicles, while Illinois did absolutely better in transportation equipment, other than motor vehicles, and in primary metals.

The income level and percentage share distribution data for two growing industry divisions are reported in Table 4 (page 8). They are the services and finance, insurance, and real estate divisions. Taken together with government, they represent a good portion of the economic growth that is said to be changing the US from a manufacturing economy to a service economy. Both divisions experienced above-average income growth and increase in income share in both Illinois and the US. In finance, insurance, and real estate, Illinois's share increase was 18.5 percent compared with 13.7 percent for the US. On the other hand, in the services division the share increase of the US was 33.9 percent compared with 30.2 percent for Illinois.

The finance, insurance, and real estate division is reported by the major group, banking, and by a classification of "other," which incorporates all the other major groups, which then are reported separately. Illinois had stronger share growth in both banking and other than did the US for the same industries. The Illinois share grew 60 percent in banking and 9 percent in "other," while the income shares in the US grew only 40 percent and 4.9 percent respectively. Thus banking, with a higher growth rate from a smaller base, contributed a substantial portion of the growth in finance, insurance, and real estate division, both in Illinois and in the US.

Within the category of "other," two small industries showed share declines. They are real estate, and combined real estate, insurance, etc. Although real estate grew in real terms, its percentage share declined in both Illinois and the US, with a somewhat greater percentage decline in Illinois. Combined offices experienced absolute income declines in both places. All other major groups grew in income share in both Illinois and the US, except for security and commodity brokers and services, which maintained a constant income share in the US. Illinois led in percentage share growth in all industries except credit agencies other than banks, where the share growth rates were both about 25 percent.

The service division, like the manufacturing division, includes both growing and declining industries. Above-average real income growth and percentage share growth

(Continued on page 9)

TABLE 1. Illinois Personal Income by Two-Digit Industry and Derivation by Place of Residence. Selected Years, 1958, 1963, 1969, 1974 and 1979 (millions of current dollars)

	1958	1963	1969	1974	1979
Income by place of work					
Total labor and proprietors income	20,203.9	23,676.5	38,298.3	55,131.8	85,268.0
By type					
Wage and salary disbursements	16,632.5	20,518.7	32,710.1	47,097.5	70,997.5
Other labor income	690.6	965.8	1,857.1	3,487.7	7,171.1
Proprietors income	2,880.8	3,027.7	3,731.1	4,546.6	7,099.4
Farm	730.3	657.6	798.4	1,410.1	1,802.6
Nonfarm	2,150.5	2,370.1	2,932.6	3,136.6	5,296.8
By industry					
Farm	817.5	765.1	904.9	1,561.1	2,167.7
Nonfarm	19,386.4	23,747.1	37,393.4	53,570.7	83,100.4
PRIVATE	17,440.4	21,076.1	32,822.7	46,228.5	72,382.1
AGRICULTURAL SERVICES, FORESTRY, FISHERIES, AND OTHER	42.1	48.5	85.8	108.7	193.0
Agricultural services	41.0	47.3	84.1	105.5	186.7
Forestry, fisheries, and other	1.1	1.3	1.7	3.2	6.4
Forestry	-	.2	.2	.6	.7
Fisheries	.7	.5	.6	1.0	2.8
Other	.4	.6	.9	1.6	2.9
MINING	203.1	200.1	245.5	430.2	882.5
Coal mining	78.5	77.8	119.1	226.6	560.5
Bituminous coal and lignite mining	78.5	77.8	119.1	226.6	560.5
Oil and gas extraction	65.8	58.8	52.5	99.7	158.9
Metal mining	2.6	2.4	.9	.4	.5
Nonmetallic minerals, except fuels	56.1	61.1	73.0	103.5	162.7
CONSTRUCTION	1,283.4	1,432.3	2,570.2	3,148.3	4,843.9
General building contractors	326.1	333.5	644.8	756.5	1,068.9
Heavy construction contractors	206.6	199.5	402.6	503.9	824.9
Special trade contractors	750.7	899.2	1,522.7	1,887.9	2,950.0
MANUFACTURING	6,771.5	8,200.0	12,623.6	17,381.3	25,199.1
Nondurable goods	2,434.0	2,349.7	4,229.3	5,550.9	7,910.2
Food and kindred products	805.9	878.6	1,179.4	1,546.6	2,168.8
Textile mill products	D^a	D^a	D^a	D^a	D^a
Apparel and other textile products	165.7	178.4	230.3	234.8	256.8
Paper and allied products	177.2	242.1	349.0	485.2	706.3
Printing and publishing	616.7	740.8	1,113.0	1,372.8	1,922.0
Chemicals and allied products	310.1	392.9	685.6	907.4	1,426.5
Petroleum and coal products	121.1	125.1	179.9	328.6	488.1
Tobacco manufactures	D^a	D^a	D^a	D^a	D^a
Rubber and misc. plastics products	121.4	170.1	357.8	528.2	815.9
Leather and leather products	73.4	81.4	93.2	105.2	78.9
Durable goods	4,337.5	5,350.3	8,394.3	11,830.4	17,288.8
Lumber and wood products	67.2	72.1	101.4	117.0	197.1
Furniture and fixtures	138.8	161.1	229.5	285.9	364.9
Primary metal industries	595.9	775.6	1,170.2	1,771.1	2,581.6
Fabricated metal products	749.8	865.2	1,390.2	1,859.8	2,895.3
Machinery, except electrical	1,033.3	1,420.3	2,286.7	3,483.1	5,078.8
Electric and electronic equipment	883.9	1,066.6	1,659.1	2,166.4	2,851.9
Transport. equipment exc. motor vehicles	145.1	129.8	248.1	386.9	666.6
Motor vehicles and equipment	132.6	143.2	247.6	368.4	699.1
Ordnance	15.1	23.3	43.9	38.6	0
Stone, clay, and glass products	213.3	249.6	349.6	462.4	698.5
Instruments and related products	192.3	242.3	394.7	508.2	745.1
Miscellaneous manufacturing industries	169.8	201.3	273.3	382.5	509.8
TRANSPORTATION AND PUBLIC UTILITIES	1,723.0	1,982.9	2,918.3	4,405.3	6,927.4
Railroad transportation	582.5	561.7	622.8	828.1	1,242.6
Trucking and warehousing	391.6	507.7	788.0	1,208.4	1,839.2
Water transportation	21.6	25.8	32.5	38.7	72.4
Other transportation	177.8	251.8	474.8	707.7	1,193.2
Local and interurban passenger transit	72.0	84.2	112.1	148.2	192.4
Transportation by air	59.9	109.3	270.1	422.5	743.4
Pipeline transportation	8.7	9.0	11.8	15.5	29.1
Transportation services	38.3	49.3	80.8	121.5	228.4
Communication	291.1	328.4	571.9	963.5	1,560.0
Electric, gas, and sanitary services	258.4	307.5	428.2	659.0	1,020.1

TABLE 1. Illinois Personal Income by Two-Digit Industry and Derivation by Place of Residence. Selected Years, 1958, 1963, 1969, 1974 and 1979 (millions of current dollars) (continued)

	1958	1963	1969	1974	1979
WHOLESALE TRADE	1,505.2	1,832.7	2,798.3	4,164.6	6,981.0
RETAIL TRADE	2,271.3	2,671.4	4,008.4	5,408.9	7,909.1
Building materials and farm equipment	164.1	177.6	258.8	369.0	D[a]
Retail general merchandise	421.9	562.1	941.7	1,272.2	1,335.9
Food stores	357.1	427.9	614.7	843.2	1,231.6
Automotive dealers and service stations	367.3	425.3	647.3	906.2	1,313.1
Apparel and accessory stores	164.5	168.4	249.2	314.5	459.5
Furniture and home furnishings stores	130.8	144.3	216.2	265.6	396.6
Eating and drinking places	349.9	413.5	612.2	827.5	D
Miscellaneous retail stores	315.6	352.2	468.2	610.7	1,249.8
FINANCE, INSURANCE, AND REAL ESTATE	1,097.7	1,384.3	2,113.6	3,031.5	5,449.8
Banking	203.3	271.0	445.3	775.3	1,351.6
Other finance, insurance, and real estate	894.4	1,113.3	1,668.4	2,256.2	4,098.3
Credit agencies other than banks	87.4	124.9	170.7	256.8	456.9
Security, commodity brokers and services	87.4	96.9	200.8	259.2	560.1
Insurance carriers	289.1	394.1	607.2	964.9	1,485.8
Insurance agents, brokers, and services	127.8	169.9	244.5	337.7	721.7
Real estate	255.5	271.3	374.2	353.6	661.1
Combined real estate, insurance, etc.	39.3	46.4	49.9	48.7	80.3
Holding and other investment companies	7.9	9.9	21.1	35.3	132.5
SERVICES	2,543.1	3,323.8	5,458.9	8,149.7	13,996.3
Hotels and other lodging places	114.1	130.4	183.2	265.1	343.5
Personal services	315.8	355.3	464.4	448.0	587.0
Private households	141.3	150.2	177.7	197.1	290.6
Business and repair services	489.7	643.6	1,096.9	1,612.5	3,060.2
Miscellaneous business services	343.5	464.7	810.0	1,193.9	2,352.6
Auto repair, services, and garages	80.4	106.4	165.0	248.4	443.5
Miscellaneous repair services	65.9	72.6	121.9	170.2	264.1
Amusement and recreation	117.7	129.4	200.6	261.8	400.0
Amusement and recreation serv., NEC	84.3	95.7	147.3	203.0	309.6
Motion pictures	33.3	33.7	53.2	58.9	90.4
Professional, social, and related serv.	1,364.5	1,915.0	3,336.1	5,365.2	9,315.1
Medical and other health services	586.8	827.0	1,506.1	2,516.5	4,652.5
Legal services	194.8	291.0	427.0	685.3	1,189.7
Private educational services	123.8	186.8	332.9	621.5	906.6
Museums	1.7	3.4	9.9	20.2	29.6
Nonprofit membership organization	228.8	344.0	535.9	747.9	961.2
Miscellaneous services	228.5	262.9	524.2	773.9	1,202.8
GOVERNMENT AND GOVERNMENT ENTERPRISES	1,946.0	2,671.0	4,570.7	7,342.2	10,718.3
Federal, civilian	505.2	637.0	981.7	1,404.1	1,943.4
Federal, military	211.5	220.9	386.3	429.5	526.2
State and local	1,229.3	1,813.1	3,202.6	5,508.6	8,248.7
Derivation of personal income by place of residence					
Total labor and proprietors income by place of work	20,203.9	24,512.1	38,298.3	55,131.8	85,268.0
Less: personal contributions for social insurance by place of work	438.3	733.5	1,611.9	2,827.8	4,585.4
Net labor and proprietors income by place of work	19,765.6	23,778.6	36,686.3	52,304.0	80,682.6
Plus: residence adjustment	86.6	125.7	166.1	228.7	452.1
Net labor and proprietors income by place of residence	19,852.2	23,904.3	36,852.5	52,532.6	81,134.7
Plus: dividends, interest, and rent	2,769.0	4,069.5	6,254.4	9,682.5	16,314.2
Plus: transfer payments	1,456.0	1,976.9	3,472.1	7,160.7	12,582.8
Personal income by place of residence	24,077.2	29,950.8	46,578.9	69,375.8	110,031.8
Per capita income (thousands of dollars)	2.4	2.9	4.2	6.2	9.8
Total population (millions)	9.9	10.4	11.0	11.2	11.2

Source: Regional Economic Information System, Bureau of Economic Analysis.

[*] GNP implicit price deflators: 1958=100; 1963=108.37; 1969=131.27; 1974=175.62; 1979=250.47. Computed from US Department of Commerce, Bureau of Economic Analysis, *Business Statistics, 1977*, and *Survey of Current Business*, September 1980.

[a] (D) not shown to avoid disclosure of confidential information.

TABLE 2. Level and Percentage Share Distribution of Labor and Proprietors' Income by Industry Division, for Illinois and the US, 1958 and 1979

	Illinois			United States			US/IL
	Income in 1958 $ millions[a]		% change 1958-79	Income in 1958 $ millions[a]		% change 1958-79	Relative change ratio[b]
	1958	1979		1958	1979		
Total	20,203.9	34,043.2	68.4	294,904.6	594,351.0	101.5	1.48
Farm	817.5	865.4	5.9	15,281.4	16,673.9	9.1	1.54
Nonfarm	19,386.4	33,177.8	71.1	279,623.2	577,677.2	106.6	1.50
Private	17,440.4	28,898.5	65.7	238,098.5	482,979.6	102.8	1.56
Agric. serv., forestry, Fisheries, and other	42.1	77.1	83.1	996.8	2,478.9	148.7	1.79
Mining	203.1	352.4	73.5	4,595.9	9,813.2	113.5	1.54
Construction	1,283.4	1,933.9	50.7	17,854.7	36,214.3	102.8	2.03
Manufacturing	6,771.5	10,060.7	48.6	86,160.5	154,759.9	79.6	1.64
Nondurable goods	2,434.0	3,158.1	29.7	34,811.0	53,406.0	53.4	1.80
Durable goods	4,337.5	6,902.6	59.1	51,349.5	101,353.9	97.4	1.65
Transpor. and public utilities	1,723.0	2,765.8	60.5	22,921.1	45,751.6	99.6	1.65
Wholesale trade	1,505.2	2,787.2	85.2	18,424.3	39,524.9	114.5	1.34
Retail trade	2,271.3	3,157.7	39.0	34,665.7	58,801.5	69.6	1.78
Finance, insurance, and real estate	1,097.7	2,175.8	98.2	15,053.8	34,439.3	128.8	1.31
Services	2,543.1	5,588.0	119.7	37,425.7	101,196.2	170.4	1.42
Government	1,946.0	4,279.3	119.9	41,524.7	94,697.6	128.1	1.07
Federal, civilian	505.2	775.9	53.6	12,181.1	22,530.0	85.0	1.59
Federal, military	211.5	210.1	-0.7	7,836.2	8,347.9	6.5	[c]
State and local	1,229.3	3,293.3	167.9	21,507.4	63,819.6	196.7	1.17

TABLE 2. (continued)

	Illinois			United States			Area with relative gain (less loss)
	Industry's % share of total income		% change in share 1958-79	Industry's % share of total income		% change in share 1958-79	
	1958	1979		1958	1979		
Total	100.0	100.0	-	100.0	100.0	-	-
Farm	4.0	2.5	-37.5	5.2	2.8	-46.2	IL
Nonfarm	96.0	97.5	1.6	94.8	97.2	2.5	US
Private	86.3	84.9	-1.6	80.7	81.3	0.7	US
Agric. serv., forestry, fisheries, and other	0.2	0.2	0.0	.3	.4	33.3	US
Mining	1.0	1.0	0.0	1.5	1.7	13.3	US
Construction	6.3	5.7	-9.5	6.1	6.1	0.0	US
Manufacturing	33.5	29.6	-11.6	29.2	26.0	-11.0	US
Nondurable goods	12.0	9.3	-22.5	11.8	9.0	-23.7	IL
Durable goods	21.5	20.3	-5.6	17.4	17.1	-1.7	US
Transpor. and public utilities	8.5	8.1	-4.7	7.8	7.7	-1.3	US
Wholesale trade	7.4	8.2	10.8	6.2	6.7	8.1	IL
Retail trade	11.2	9.3	-17.0	11.8	10.0	-15.3	US
Finance, insurance, and real estate	5.4	6.4	18.5	5.1	5.8	13.7	IL
Services	12.6	16.4	30.2	12.7	17.0	33.9	US
Government	9.6	12.6	31.3	14.1	15.9	12.8	IL
Federal, civilian	2.0	2.3	15.0	4.1	3.8	-7.3	IL
Federal, military	1.0	.6	-4.0	2.7	1.4	-48.1	IL
State and local	6.1	9.6	57.4	7.3	10.7	46.6	IL

Source: Regional Economic Information System, Bureau of Economic Analysis.

[a] GNP deflator values: 1958=100, 1979=250.47. [b] Percent change for United States/percent change for Illinois. [c] Ratio not easily interpreted for mathematical reasons. See text for analysis.

TABLE 3. Level and Percentage Share Distribution of Labor and Proprietors' Income by Major Industry Group in Manufacturing, for Illinois and the US, 1958 and 1979

	Illinois			United States			US/IL
	Income in 1958 $ millions[a]		% change 1958-79	Income in 1958 $ millions[a]		% change 1958-79	Relative change ratio[b]
	1958	1979		1958	1979		
Manufacturing	6,771.5	10,060.7	48.6	86,160.5	154,759.9	79.6	1.64
Nondurable goods	2,434.0	3,158.1	29.7	34,811.0	53,406.0	53.4	1.80
Food and kindred products	805.9[c]	865.9[c]	7.4	8,884.5	11,452.1	28.9	3.91
Textile mill products				3,241.2	4,299.1	32.6	–[d]
Apparel and other textile products	165.7	102.5	-38.1	4,013.1	5,028.5	25.3	
Paper and allied products	117.2	282.0	140.6	3,070.5	5,675.3	84.8	.60
Printing and publishing	616.7	767.4	24.4	4,976.8	7,846.4	57.6	2.36
Chemicals and allied products	310.1	569.5	83.7	5,168.3	9,879.0	91.1	1.09
Petroleum and coal products	121.1[c]	194.9[c]	60.9	1,898.1	2,467.0	30.0	.49
Tobacco manufactures			–	380.0	545.8	43.6	–
Rubber and misc. plastic products	121.4	325.8	168.4	1,905.0	5,188.2	172.3	1.02
Leather and leather products	73.3	31.5	-57.0	1,273.4	1,024.5	-19.5	.34
Durable goods	4,337.5	6,902.5	59.1	51,349.5	101,353.8	97.4	1.64
Lumber and wood products	67.2	78.7	17.1	2,534.6	4,909.6	93.7	5.48
Furniture and fixtures	138.8	145.7	5.0	1,619.3	2,542.2	57.0	11.40
Primary metal industries	595.9	1,030.7	73.0	7,411.1	12,708.1	71.5	.98
Fabricated metal products	749.8	1,155.9	54.0	6,182.1	12,562.4	103.2	1.90
Machinery, except electrical	1,033.3	2,027.7	96.2	8,242.9	20,100.2	143.8	1.49
Electric and electronic equipment	883.9	1,138.6	28.8	6,905.2	15,045.7	117.9	4.09
Transport. equipment, except motor vehicles	145.1	266.1	83.4	6,339.9	9,636.3	52.0	.62
Motor vehicles and equipment	132.6	279.1	110.5	4,402.2	11,230.9	155.1	1.40
Stone, clay, and glass products	213.3	278.9	30.8	3,032.2	5,281.7	74.2	2.41
Instruments and related products	192.8	297.5	54.3	1,956.2	4,931.5	152.1	2.80
Misc. manufacturing industries	169.8	203.5	19.8	1,750.8	2,405.1	37.4	1.89

TABLE 3. (continued)

	Illinois			United States			Area with relative gain (less loss)
	Industry's % share of total income		% change in share 1958-79	Industry's % share of total income		% change in share 1958-79	
	1958	1979		1958	1979		
Manufacturing	33.5	29.6	-11.6	29.2	26.0	-11.0	US
Nondurable goods	12.0	9.3	-22.5	11.8	9.0	-23.7	IL
Food and kindred products	4.0[c]	2.5[c]	-37.5	3.0	1.9	-36.7	US
Textile mill products			–	1.1	.7	-36.4	–
Apparel and other textile products	.8	.3	-62.5	1.3	.8	-38.5	US
Paper and allied products	.9	.8	-11.1	1.0	1.0	0.0	US
Printing and publishing	3.1	2.3	-25.8	1.7	1.3	-23.5	US
Chemicals and allied products	1.5	1.6	6.6	1.7	1.7	0.0	IL
Petroleum and coal products	.6[c]	.6[c]	0.0	.6	.4	-33.3	IL
Tobacco manufactures			–	.1	.1	0.0	–
Rubber and misc. plastic products	.6	1.0	66.7	.6	.9	50.0	IL
Leather and leather products	.4	.1	-75.0	.4	.2	-50.0	US
Durable goods	21.5	20.3	-5.6	17.4	17.1	-1.7	US
Lumber and wood products	.3	.2	-33.3	.9	.8	-11.1	US
Furniture and fixtures	.7	.4	-42.9	.9	.4	-55.6	IL
Primary metal industries	2.9	3.0	3.4	2.5	2.1	-16.0	IL
Fabricated metal products	3.7	3.3	-10.8	2.1	2.1	0.0	US
Machinery, except electrical	5.1	5.9	15.7	2.7	3.4	25.9	US
Electric and electronic equipment	4.4	3.3	-25.0	2.3	2.5	8.7	US
Transport. equipment, except motor vehicles	.7	.8	14.3	2.1	1.6	-23.8	IL
Motor vehicles and equipment	.7	.8	14.3	1.5	1.9	26.7	US
Stone, clay, and glass products	1.1	.8	-27.3	1.0	.9	-1.0	US
Instruments and related products	1.0	.8	-20.0	.7	.8	14.3	US
Misc. manufacturing industries	.8	.6	-25.0	.6	.4	-33.3	IL

Source: Regional Economic Information System, Bureau of Economic Analysis.

[a] GNP deflator values: 1958=100, 1979=250.47. [b] Percent change for United States/percent change for Illinois. [c] Not shown to avoid disclosure of confidential information. [d] Ratio not easily interpreted for mathematical reasons. See text for analysis.

TABLE 4. Level and Percentage Share Distribution of Labor and Proprietors Income by Major Industry Group in the Finance, Insurance, and Real Estate and the Services Divisions, for Illinois and the US, 1958 and 1979

	Illinois			United States			US/IL
	Income in 1958 $ millions[a]		% change 1958-79	Income in 1958 $ millions[a]		% change 1958-79	Relative change ratio[b]
	1958	1979		1958	1979		
Finance, insurance, and real estate	1,097.7	2,175.8	98.2	15,053.8	34,439.3	128.8	1.31
Banking	203.3	539.6	165.4	3,057.7	8,668.9	183.5	1.11
Other finance, insurance, and real estate	894.4	1,636.2	82.9	11,996.2	25,770.4	114.8	1.38
Credit agencies other than banks	87.4	182.4	108.7	1,117.1	3,118.1	179.1	1.65
Security, commodity brokers, and services	87.4	223.6	155.8	1,171.6	2,600.7	122.0	.78
Insurance carriers	289.1	593.2	105.2	3,823.0	8,151.1	113.2	1.07
Insurance agents, brokers, and services	127.8	288.1	125.4	1,677.6	4,506.3	168.6	1.34
Real estate	255.5	263.9	3.3	3,501.1	6,076.2	73.6	22.30
Combined real estate, insurance, etc.	39.3	32.1	-18.3	468.4	252.3	-46.1	2.52
Holding and other investment companies	7.9	52.9	569.6	237.3	1,065.6	349.1	.61
Services	2,543.1	5,588.0	119.7	37,425.7	101,196.2	170.4	1.42
Hotels and other lodging places	114.1	137.1	20.2	1,698.4	3,575.3	110.4	5.47
Personal services	315.8	234.4	-25.8	4,104.4	4,353.4	6.7	[c]
Private households	141.3	116.0	-17.9	3,494.0	3,243.9	-7.2	[c]
Business and repair services	489.7	1,221.8	149.5	6,074.4	21,579.0	255.2	1.71
Misc. business services	343.5	939.3	173.4	3,702.1	15,824.3	327.4	1.89
Auto repair, services, and garages	80.4	177.1	120.3	1,367.9	3,590.4	162.5	1.35
Misc. repair services	65.9	105.4	60.0	1,004.4	2,164.3	115.5	1.92
Amusement and recreation	117.7	159.7	35.7	2,072.3	4,140.2	100.0	2.80
Amusement and recreation serv., nec.	84.3	123.6	46.6	1,285.4	2,909.3	126.3	2.71
Motion pictures	33.3	36.1	8.4	786.9	1,230.9	56.4	6.71
Professional, social, and related services	1,364.5	3,719.0	172.6	19,982.2	64,304.3	221.8	1.28
Medical and other health services	586.8	1,857.5	216.5	9,171.8	32,814.7	257.8	1.19
Legal services	194.8	475.0	143.8	2,290.6	7,110.6	210.4	1.46
Private educational services	123.8	362.0	192.4	1,989.1	5,912.9	197.3	1.03

TABLE 4. (continued)

	Illinois			United States			Area with
	Industry's % share of total income		% change in share 1958-79	Industry's % share of total income		% change in share 1958-79	relative gain (less loss)
	1958	1979		1958	1979		
Finance, insurance, and real estate	5.4	6.4	18.5	5.1	5.8	13.7	IL
Banking	1.0	1.6	60.0	1.0	1.4	40.0	IL
Other finance, insurance, and real estate	4.4	4.8	9.0	4.1	4.3	4.9	IL
Credit agencies other than banks	.4	.5	25.0	.4	.5	25.0	-
Security, commodity brokers, and services	.4	.6	50.0	.4	.4	0.0	IL
Insurance carriers	1.4	1.7	21.4	1.3	1.4	7.7	IL
Insurance agents, brokers, and services	.6	.8	33.3	.6	.8	33.3	-
Real estate	1.3	.7	-46.2	1.2	1.0	-16.7	US
Combined real estate, insurance, etc.	.2	.1	-50.0	.2	-	-	-
Holding and other investment companies	-	-	-	.1	.2	100.0	-
Services	12.6	16.4	30.2	12.7	17.0	33.9	US
Hotels and other lodging places	.6	.4	-33.3	.6	.6	0.0	US
Personal services	1.6	.7	-56.3	1.4	.7	-50.0	US
Private households	.7	.3	-57.4	1.2	.5	-58.3	IL
Business and repair services	2.4	3.6	50.0	2.1	3.6	71.4	US
Misc. business services	1.7	2.8	64.7	1.3	2.7	107.7	US
Auto repair, services, and garages	.4	.5	25.0	.5	.6	20.0	IL
Misc. repair services	.3	.3	0.0	.3	.4	33.3	US
Amusement and recreation	.6	.5	-16.7	.7	.7	0.0	US
Amusement and recreation serv., nec.	.4	.4	0.0	.4	.5	25.0	US
Motion pictures	.2	.1	-50.0	.3	.2	-33.3	US
Professional, social, and related services	6.8	10.9	60.3	6.8	10.8	58.8	IL
Medical and other health services	2.9	5.4	86.2	3.1	5.5	77.4	IL
Legal services	1.0	1.3	30.0	.8	1.2	50.0	US
Private educational services	.6	1.1	83.3	.7	1.0	42.9	IL

Source: Regional Economic Information System, Bureau of Economic Analysis.

[a] GNP Deflator Values: 1958=100, 1979=250.47 [b] Percent change for US/percent change for Illinois. [c] Ratio not useful for mathematical reasons. See text for analysis.

(Continued from page 3)

were observed in the three major groups, medical, legal, and private educational services, that make up a substantial proportion of professional, social, and related services. In legal services the US experienced the stronger gain in income share, whereas in medical and private educational the greater gain belonged to Illinois, as it did for all professional, social, and related services together.

Other industries in Illinois that showed above-average growth in increasing income shares were business and repair services, and within that category, miscellaneous business services, and auto repair. Below-average growth was seen in miscellaneous repair services, whose zero change in income share would have been negative with more precise rounding. In the US all four industries showed above-average growth and increased income shares. Income shares increased relatively more in the US for all except auto repair, whose share increased relatively more in Illinois.

Below-average growth and declining income shares are seen in Illinois in the hotel industry and in amusement and recreation and its components. In the US the hotel industry and amusement and recreation experienced roughly average growth and a constant income share although amusement and services, not elsewhere classified, grew at an above-average growth rate and an increase in income share, at the expense of motion pictures. All four industry categories did relatively better in the US than in Illinois. Private households in both Illinois and the US posted losses in real income, with roughly equal losses in income share. Personal services showed moderate real growth in the US and real losses in Illinois, so that share loss was not as great in the US as a whole.

While the US showed slightly stronger share gains than Illinois in the services division, Illinois posted larger gains in important components. Illinois led professional, social, and related services and especially in medical and private educational services. On the other hand, the US did better in legal services and in all other of the major groups, except for auto repair and private households. As was the case in manufacturing, Illinois led in some trends, while the US led in others.

Throughout this study Illinois real income growth and changes in the share distribution of income by industry have been contrasted with those of the US in order to compare changes in the industry composition of the two economies. One conclusion is that both have increasingly less emphasis on farming, manufacturing, transportation, and retail trade while sustaining positive growth in real income in each of these industries. Another conclusion is that, for both, a larger proportion of income comes from the services and finance, insurance, and real estate divisions, with Illinois leading in finance, insurance, and real estate, and in some components of services, and with the US leading in services overall. In nondurable goods manufacturing, large income share declines occurred for both areas. Share declines were smaller in durable goods, with the US experiencing almost no share decline, while Illinois had a somewhat more pronounced decline in that industry.

Comparative Economic Data for Selected Illinois Cities, February 1981

	Construction activity				Electric power consumption (000,000 kwh)		Employment (000)		Estimated work force unemployed (percent)	
	Nonresidential buildings		Residential buildings							
	Feb. 1981	Feb. 1980	Feb. 1981	Feb. 1980	Feb. 1981	% change from Feb. 1980	Feb. 1981	% change from Feb. 1980	Feb. 1981	Feb. 1980
ILLINOIS	504	536	349	462	3,413.8[a]	-0.7	4,921.0	-1.4	8.8	7.5
NORTHERN ILLINOIS										
Chicago	24	28	9	89	1,639.1	-1.0	3,115.4	-1.1	8.2	6.8
Aurora	2	3	1	2	141.1	+22.6	35.7[b]	-1.1	10.9[b]	7.2[b]
Elgin	5	1	3	4	90.6	-0.7	27.5	-1.1	9.6	8.7
Joliet	5		0		374.1	-2.9	34.1	-1.2	13.6	13.5
Kankakee	0	0	0	0	77.8[c]	+1.7	35.5[b]	-6.1	12.4[b]	10.5[b]
Rock Island-Moline	3	7	15	3	125.1[d]	-0.2	100.4[e]	-3.0	8.3[e]	6.1[e]
Rockford	2	8	6	18	151.7	-2.4	117.8[b]	-5.7	10.8[b]	8.1[b]
CENTRAL ILLINOIS										
Bloomington-Normal	7	20	14	13	48.2	-2.4	55.8[b]	-0.9	7.0[b]	6.2[b]
Champaign-Urbana	4	12	3	10	52.1	-2.4	79.0[b]	+6.2	6.0[b]	5.7[b]
Danville	8	5	0	2	47.4	+5.1	15.8	-3.7	15.1	14.7
Decatur	3	0	3	2	137.3	+5.9	53.6[b]	+0.2	11.5[b]	10.4[b]
Galesburg	1	2	0	0	29.0[c]	-6.5	13.4	-2.9	13.5	11.5
Peoria	6	5	11	0	182.9	-5.5	154.0[b]	-4.4	9.7[b]	7.6[b]
Quincy	2	4	2	1	39.1	-8.4	17.8	-2.2	9.9	8.3
Springfield	2	3	5	6	114.5	-6.5	87.0[b]	-4.2	7.3[b]	8.0[b]
SOUTHERN ILLINOIS										
East St. Louis	0	0	0	0	21.4	-9.7	21.5	-1.4	10.4	11.8
Alton	3	1	0	3	79.5	+5.9	13.4	-1.2	11.3	10.9
Belleville	1	1	0	0	26.9	-2.5	17.0	-1.2	14.3	12.7
Carbondale-Murphysboro	3	0	3	2	36.0	+0.3	25.2[f]	-4.2	9.9[f]	9.1[f]

[a] Total for cities listed. [b] Data for Standard Metropolitan Statistical Area. [c] Includes immediately surrounding territory. [d] Includes East Moline. [e] Data for Illinois part of Davenport-Rock Island-Moline SMSA. [f] Data for Carbondale-Murphysboro LMA. n.a. not available.

New BEA County Data for Illinois Available, 1974–79

The new Illinois county data released from the Bureau of Economic Analysis have recently arrived. County sets for Illinois are available for personal income, employment, farm income, and transfer payments. They cover the years 1974 to 1979 and are for sale, replacing previous sale items. The personal income and the employment tables replace tables for 1973 to 1978, dropping 1973, adding 1979, and reviewing the figures for 1977 and 1978. Farm income and transfer payments tables supersede sets for 1969 to 1977 and 1972 to 1977 respectively. The 1978 and 1979 numbers are new, while those for 1976 and 1977 have been revised.

Personal income, employment, and transfer payment sets include pages for each Standard Metropolitan Statistical Area. Charge is $20 for each of the four sets of all counties to cover reproduction and handling charges. Combined sets of old and new tables are $25 each. Individual pages are $1 each with a $5 minimum charge.

Two sets of Illinois statewide personal income are available: detailed components of Illinois personal income (intermediate table) 1958–79; and Illinois personal income by major source and earnings by 2-digit SIC, 1958–79. Charge is $5 for each set.

To obtain these data sets, write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, 1206 S. Sixth St., Champaign, IL 61820. All sets originate with the Bureau of Economic Analysis of the US Department of Commerce.

Illinois Business Indexes

Item	Feb. 1981	Jan. 1981	Dec. 1980	Nov. 1980	Feb. 1980
Leading indicator (1969=100)	86.8	88.0	89.2	89.4	88.7
Coincident indicators (1969=100)	129.4	130.2	130.1	128.2	124.4
Employment - manufacturing (in thousands)	1,172.1	1,179.2	1,196.3	1,179.8	1,217.7
Average weekly hours - manufacturing	39.0	40.1	40.9	40.1	40.6
Weekly earnings - manufacturing	$338.52	$345.66	$348.88	$338.44	$309.9
Layoff rate - Chicago	1.0	1.2	0.8	0.7	0.6
Help Wanted Advertising - Chicago (1969=100)[1]	71.0	66.0	70.0	77.0	96.0
Help Wanted Advertising - St. Louis (1967=100)[1]	58.0	58.0	55.0	60.0	
Ordinary life insurance sales (in millions)	$1,575	$1,385	$2,015	$1,504	$1,413
Retail sales (in millions)	n.a.	$3,842	$5,059	$4,292	$3,399
Coal production (in thousands tons)	5,620	5,710	5,469	4,666	5,469
Petroleum production (in thousands barrels)	1,775	2,000	1,865	1,808	1,840
Vendor performance (percent)	47.9	49.7	49.6	50.0	40.7
Building permits (in thousands)					
Residential housing units	.96	.74	1.35	2.87	1.16
Value of residential housing	$39,756	$32,368	$58,294	$117,989	$42,379
Value of nonresidential construction					
Industrial buildings	$29,820	$11,458	$14,254	$20,721	$115,103
Office, banks, and professional buildings	$21,394	$21,410	$37,267	$49,777	$27,987
Stores and other mercantile buildings	$6,915	$5,668	$11,269	$17,309	$18,296
Other	$20,413	$10,545	$20,258	$60,167	$24,775
Consumer price index					
North Central US	142.3	-	140.4	-	128.0
North Central/population more than 4,000,000	144.0	-	143.3	-	129.6
North Central/population 385,000 to 1,250,000	142.8	-	140.0	-	127.2
North Central/population 75,000 to 385,000	139.7	-	136.6	-	126.4
North Central/population less than 75,000	139.6	-	136.2	-	125.8
Chicago	259.6	258.9	260.3	259.9	232.7
St. Louis	-	255.7	-	253.8	-
Prices received by farmers	131.0	133.0	132.0	135.0	113.0
	1980:III	1980:II	1980:I	1979:IV	1979:III
Personal income (in millions)	$122,435	$118,161	$116,226	$112,317	$112,096

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[1] **Source: The Conference Board, *Help Wanted Advertising*, February 1980. n.a. not available.**

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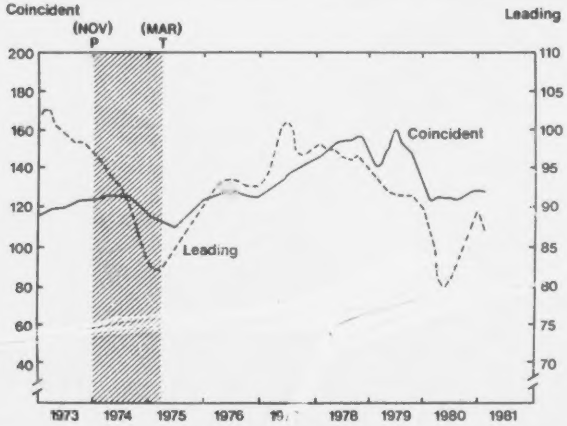

Note: P and *T* designate peaks and troughs of the business cycle for the US as defined by the National Bureau of Economic Research.
Bureau of Economic and Business Research

The coincident and leading indicators signal uncertainty about the course of economic activity over the coming months. The 0.6 percent January-to-February decline in the coincident indicator follows after seven consecutive monthly increases and was precipitated by drops in real weekly earnings in the manufacturing sector and nonagricultural employment. It is worth noting that prior to adjustment for inflation, the weekly earnings series shows a 1.6 percent month-to-month seasonally adjusted slide. The inflation-adjusted data indicate that weekly earnings in February were 2.0 percent below the January level.

Despite a rise in construction activity and a 0.2 percent decline in the seasonally adjusted layoff rate in manufacturing, the leading indicator turned downward by 1.4 percent in February. The indicator stalled in December 1980 and has been painting a lackluster picture of the economy's performance over the first two months of 1981.

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Is the Interest Rate Decline for Real?

Interest rate behavior in the past several years has been characterized by two distinctive features. One, interest rates have fluctuated violently. Two, rate levels have reached, and moved around, record highs. The effects of high and volatile interest rates seem clear. Those elements of the economy that are importantly affected by interest rates have been badly depressed. The causes of recent interest rate movements are less clear.

High and Volatile Interest Rates

Interest rates in the past decade have been substantially higher than in the preceding 10 years. In the decade ending in 1980, yields on one-year Treasury bills averaged 7.35 percent; in the decade ending in 1970, these interest rates averaged 4.62 percent. Interest rate fluctuations have widened. The highest and lowest average one-year bill rate in the 1960s were 6.79 percent and 3.01 percent, respectively — a swing of 3.79 percentage points. In the 1970s there was a 7.38 percentage-point swing — from 4.67 percent to 12.05 percent.

There have been two interest rate peaks in 1981. The one-year bill rate reached 14.92 percent in mid-February, fell to 12.96 percent in mid-March, then rose to 14.68 percent in mid-May. Over roughly this same time sequence, the prime rate — the rate of interest banks charge their best corporate customers, reached 21.5 percent, 17 percent, and 20.5 percent.

Interest rates are moving lower, at this writing. The question is whether current movements are merely one more short-term dip in the roller coaster, or whether there are fundamental, long-term factors at work.

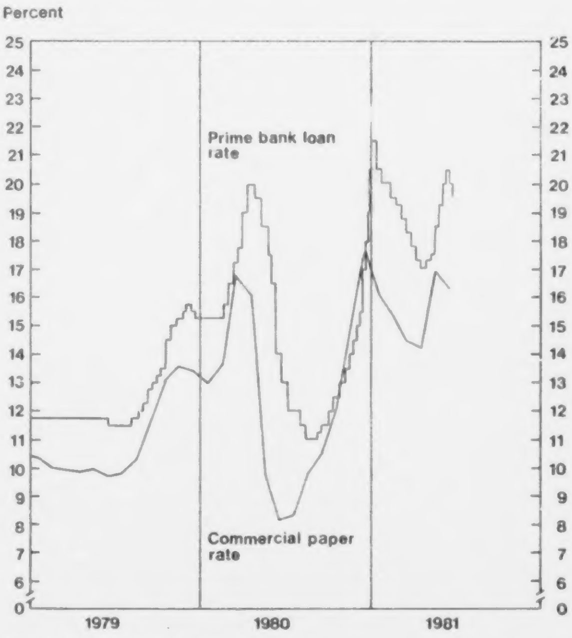
Interest Rates and the Economy

Changes in economic activity exert forces on interest rates. During periods of strong expansion there are increases in the demand for credit — tending to drive interest rates higher. Conversely, during periods of economic weakness there are declines in the demand for credit.

There is much uncertainty regarding the prospective course of the economy. Clearly, the economy was weak during much of last year. And there was every reason to suppose that the weakness would persist. As it turns out, however, activity quickened in the first quarter, as real gross national product rose at an 8.4 percent annual rate.

Since the initial quarter of the year, economic activity has moved moderately higher. Industrial output has ex-

Interest Rates



Bureau of Economic and Business Research

The "Baby Boom" Generation

By Cheng-hung Chiang and *Richard Kolhauser* / *Page 3*

Interest Rates and Inflation

Year	One-year bill rate	Inflation rate	Bill rate minus inflation rate
1981	14.17*	8.92**	5.25
1980	12.05	9.01	3.04
1979	10.67	8.73	1.94
1978	8.34	7.29	1.05
1977	6.09	5.91	0.18
1976	5.88	5.54	0.34
1975	6.30	7.30	-1.00
1974	7.71	9.63	-1.92
1973	7.01	7.78	-0.77
1972	4.77	4.99	-0.22
1971	4.67	4.61	0.06
1970	6.49	5.22	1.27
1969	6.79	5.19	1.60
1968	5.46	4.76	0.70
1967	4.71	3.74	0.97
1966	5.07	3.11	1.96
1965	4.06	2.75	1.31
1964	3.74	1.90	1.84
1963	3.30	1.52	1.78
1962	3.01	1.64	1.37
1961	3.61*	1.36	2.25

*Average of January-April.
**Projected on basis of first quarter data.
Note: 1961-67 data are for 9-12 month bills.

panded at about a 5 percent annual rate. Reflecting the rise in output, employment has grown in excess of a 5 percent rate. Notwithstanding these elements of strength, household spending appears to have slowed. Since the first quarter, retail sales have declined at a 3.4 percent annual rate. Automobile sales have been especially sluggish, even though they exceed their year-earlier pace.

Capital spending plans for 1981 are only moderately expansive. The most recent Commerce Department survey indicates that spending for capital equipment will rise 8.4 percent this year. After adjustment for inflation, this means that real spending will increase about 1 percent. It is worth noting that earlier surveys were more optimistic, indicating increases of more than 10 percent. Capital expenditures in 1980 were 9.3 percent greater than in the preceding year.

The upshot of all this is that there is no presumption that interest rates are high because of strength in the economy. Economic activity is not unusually strong. Instead, it is argued that high interest rates have weakened the economy. For example, household spending on heavily financed items — for example, automobiles, major household appliances, and furniture — has been severely reduced. According to this view, factors independent of the pace in current economy activity have forced high interest rates onto the economy. What factors?

Interest Rates and Inflation

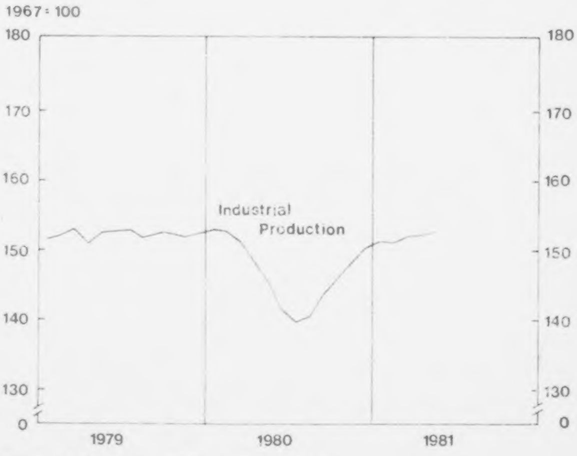
There is a view that interest rate levels are strongly affected by the expected rate of inflation. For lenders to obtain a real rate of return on their funds, they must lend at a rate of interest that is higher than their anticipated, or expected, rate of inflation.

During the decade ending in 1970, the rate of interest on one-year Treasury bills averaged about 1.5 percent points higher than the measured rate of inflation (see table). In the early 1970s, however, the tables were turned. The rate of inflation exceeded one-year bill rates from 1972 to 1975 inclusive. In fact, on average during the seven-year period ending in 1977, inflation rates exceeded interest rates by nearly one-half of a percentage point.

Since then the spread between interest rates and inflation rates has moved strongly in favor of interest rates. In early 1981 the one-year Treasury bill rate moved more than 5 percentage points higher than the rate of inflation. Based on these observations it is tempting to argue that interest rates are too high. In particular, they are too high in relation to the rate of inflation. Moreover, if one is persuaded that the rate of inflation will moderate, there are additional grounds for believing that the recent interest rate declines will persist.

WILLIAM R. BRYAN

Industrial Production



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Director, ROBERT W. RESEK; *Assistant to the Director,* WILLIAM R. BRYAN; *Editor,* NELLE WAGNER; *Research Assistants,* THOMAS B. BRYAN, PHILLIP A. CARTWRIGHT, JOHN F. SCHNELL, and RUSSELL E. SMITH.

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The "Baby Boom" Generation

CHENG-HUNG CHIANG and RICHARD KOLHAUSER

Between the years 1947 and 1964, one-third of all living Americans (75 million) were born. Persons born during this period are commonly referred to as the baby boom generation. In Illinois, the baby boom population totals about 3.5 million, or nearly one of every three persons in the state. Because of sheer numbers alone, the baby boom generation and the social and economic impacts associated with them will strongly influence the delivery of government services for approximately 75 years, from 1950 to the year 2025. The baby boom generation has already had profound impacts upon government spending for elementary and secondary education, higher education, and correctional institutions. In the coming years, as this group of persons grows older, their impact upon government must be anticipated. In the near future, for example, school enrollments will fall, youth unemployment may decline, and prison inmate populations might stabilize. In the longer term, the baby boom generation will strongly influence the need for, and the delivery of, medical services, nursing home care, and retirement income. The purpose of this paper is to define selected changes in the demographic characteristics of the baby boom generation, focusing upon the changes in the age composition, and to describe the likely impact of such demographic changes upon state government services (and funding levels) in the coming year.

Changing Demographic Characteristics

The fertility rate (the number of babies born per 1,000 women aged 15-44) increased markedly between the years 1947 to 1964. The national fertility rate, which was only 86 in 1945, jumped to 113 in 1947, and reached a peak level of 123 in 1957. The high fertility rate was sustained throughout the period 1947–64, and then rapidly declined (Table 1). A similar change in fertility rate during the same period was also recorded in Illinois. This surge in the fertility rate was so unique that it was characterized by demographers as the "baby boom." It was unique not only in the sense that the fertility rates in the period 1947–64 were unprecedented by those in modern US history, but also in the sense that they are unlikely to be surpassed by those in the near future.

As a result of the surge in fertility rates, approximately 75 million babies were born in the US (3.5 million were born in Illinois) between the years 1947-64.

Mr. Kolhauser is deputy director of the Illinois Bureau of the Budget and has worked under three governors in the area of state finance since 1970. He has previously written several articles on state finances in Illinois. Cheng-hung Chiang received his Ph.D. in sociology from the University of Chicago and is currently employed as a demographer by the Illinois Bureau of the Budget.

This generation of Americans is now growing older. In 1960, the baby boom generation ranged between ages of 0–13 years, swelling the school-age population throughout the decade, and toward the end of the decade, the young adult population. In 1970, the baby boom population ranged in age from 6–23 years. The school-age population peaked in the early 1970s while the young adult population continued to increase, expanding the workforce and building higher education enrollments. In 1980, this generation ranged in age from 17–33 years. By 1990, the baby boom group will be between 27–43 years, the size of the young adult population will have declined, and the increases in the size of the labor force will have slowed. By approximately the year 2010, the first portion of the baby boom generation will begin to retire. Each year thereafter an increasing number will retire until a peak is reached around 2025. This age cycle impact of the baby boom generation for Illinois is shown in Table 2. As the baby boom population ages, its dramatic impact upon the size and the increase in the size of important age groups is shown in the table. For example, as a result of the high fertility rate in the 1950s, the population in the age group 0–4 increased 34 percent while the young adult population (5–17) increased 47 percent. The other specific changes caused by the baby boom upon the Illinois age structure can be traced through the table.

The baby boom population is now in the process of forming households. Despite an expected increase of only

TABLE 1. Changing Fertility Rate in the US, 1940-80

Year	Fertility rate[a]
1940	80
1945	86
1950	106
1955	119
1957	123
1960	118
1965	97
1970	88
1975	66
1980	70

Source: Based on US Bureau of the Census, *Historical Statistics, Colonial Times to 1970*, Table 5-10, p. 49. Figures for 1975 and 1980 are based on US Bureau of the Census, *Current Population Reports*, Series P-25, No. 805, Table A-8, p. 80.

[a] Number of babies born per 1,000 women aged 15-55.

3 percent in the overall Illinois population in the next decade, the number of households will increase by almost 16 percent to 4.8 million. Even more dramatic is the expected increase of 29 percent in the number of female-headed households. (This latter increase is, however, not entirely attributable to the impact of the baby boom.)

Impacts upon Government Programs and Spending

Education. One of the first impacts of the baby boom generation was upon elementary and secondary education. The data in Table 2 show that the number of school-age children in Illinois increased from 1.6 million in 1950 to 2.9 million in 1970, an increase of 83 percent. Consequently, the number of school enrollments nearly doubled in Illinois during the period. Enrollments peaked at 2.3 million students in 1972 and have declined each year thereafter as the baby boom impact receded. By 1980, school enrollments dropped approximately 17 percent to 1.9 million from the 1972 level. This decline is expected to continue through the 1980s.

By the late 1960s, the first of the baby boom generation reached the higher education age grouping. Through the 1960s and 1970s, the number of young adults aged 18–21 jumped from 476,000 to 845,000, an increase of nearly 78 percent. As a result of this increase, higher education enrollments tripled, from 152,000 in 1960 to 457,000 by 1980.

Now the number of young adults has begun to decline. Since the oldest of the baby boom generation is about 33 years of age and the youngest about 17, a 21 percent decline in the age group 18–21 is expected in the coming decade for both Illinois and the US. Enrollments in higher education are expected to decline along with the decline in the number of persons in the young adult age group. The pending decline in higher education enrollments follows, by about a decade, the decline in elementary and secondary enrollments.

Other factors including economic trends will also influence future enrollment trends, somewhat obscuring the direct relationship between the number of young adults and enrollments.

Labor Force. Mainly as a result of the entry of the baby boom, the size of the labor force increased substantially in the 1970s for both Illinois and the US. An increase of 17 percent was observed for Illinois in the past 10 years even though the total population increased only 2 percent (Table 3). The increase was due in large part to the entrance of the baby boom population into the 16–24 age group of the labor force. Partly in response to this demographic phenomenon government employment and training programs were created.

Although most of the persons born between 1947 and 1964 have already been absorbed into the labor force, the last of the baby boom generation will still increase Illinois's labor force in the decade ahead. The impact will mainly stem from two sources: (1) entry of the remaining portion of the baby boom generation now aged 16–21 into the labor force, and (2) maturing of the baby boom generation into age groups with higher labor force participation rates.

In the decade ahead, the size of the labor force in Illinois is projected to increase by approximately 7 percent. The comparatively small increase (see Table 3) reflects the abating impact of the "baby boom generation" on the size of the labor force in the coming years. In the next decade, the baby boom generation will cause the workforce age distribution to shift to older workers. For example, while persons aged under 24 accounted for 25 percent of the total labor force in 1980, they will constitute only 19 percent in 1990. On the other hand, the proportion of workers in the 25–64 age group will increase.

These changes in the age composition of the workforce are likely to have broad implications. The shrinkage in the young adult age group could begin to ease the problem of youth unemployment (assuming economic growth in the decade ahead). The growth of the population aged 25–64 in the workforce should imply increased earning power and greater productivity in the economy. The increasing maturity of the workforce, coupled with the further increase in the overall size of the labor force, also suggests a strong revenue base to state government from the existing tax structure.

If, however, the economy were to grow very slowly, competition for jobs among the baby boom population could result in lower wages and slower growth in the state revenues, offsetting in part, the revenue gains derived from a larger, more mature labor force. Still other factors such as labor force participation rate and the occupational makeup of the labor force further complicate the relationship between state revenue growth and changes the size and maturity of the state's labor force.

TABLE 2. Illinois's Age Structure: The Impact of the Baby Boom (change over previous decade in thousands)

Age group		1950	1960	1970	1980	1990	2025
0–4	Population	843	1,130	939	807	934	
	% change	54%	34%	-17%	-14%	16%	
5–17	Population	1,565	2,309	2,859	2,406	2,167	
	% change	1%	47%	24%	-16%	-10%	
18–21	Population	473	479	727	845	666	
	% change	-13%	1%	52%	16%	-21%	
22–64	Population	5,079	5,190	5,498	5,970	6,512	
	% change	9%	2%	6%	9%	9%	
65+	Population	754	975	1,094	1,216	1,336	2,229
	% change	33%	29%	12%	11%	10%	67%

Source: Figures prior to 1980 are taken from the census. Those for 1980–2025 are calculated on the basis of *Illinois Population Projections: Revised 1980* (Springfield: Illinois Bureau of the Budget, 1980).

TABLE 3. Baby Boom Generation Helps to Increase the Size of Illinois Labor Force

Year	Persons in Illinois labor force	Change over prior decade
1970	4,700,000	15%
1980	5,500,000	17
1990	5,900,000	7

Source: Figures for 1970 are based on census data; those for 1980 and 1990 are obtained from the Labor Force Projections, Illinois Bureau of the Budget.

Prison Inmate Population. Admissions of felons to prison systems rose dramatically from 1973 through 1979 for both Illinois and the US. In Illinois the inmate population rose from 6,000 to 11,000. The vast majority of commitments to prisons are persons between the ages of 16–24. Thus, part of the explanation for the increase in the inmate population can be traced to the growth in the size of this particular age grouping in the 1970s. In the 1980s, the number of persons in the 16–24 age grouping will decline. This creates the expectation that the inmate population might also decline. However, the reduction in the number of persons in crime-prone age groups may not immediately result in a decrease in prison population. There are reasons why the prison population is not strictly related to changes in the crime-prone age group. For example, there is generally a lag between a reduction in the size of the at-risk age population and the number of prison inmates. Also, the number of criminals aged 30–40 normally tend to serve longer sentences, and this age grouping will increase in size. Other factors such as improvements in the criminal justice system, and rate of economic growth also affect the overall size of prison inmate populations. For these reasons, projections of the prison population cannot be made solely on the basis of the changing age compositions.

General Assistance. The largest number of persons receiving assistance in Illinois tend to be between 20–29 years old. A substantial proportion of the Illinois baby boom generation (approximately 1.5 million) will still be in this group before 1985. A significant decline in the number of persons receiving general assistance may not, therefore, be expected unless other factors bearing upon the size of the general assistance caseload (employment opportunities) tend to improve. However, as most of the baby boom generation moves out of this age group in the late 1980s, a decline in the general assistance caseload becomes more likely.

Aid to Families with Dependent Children. The average size of families receiving income support from the state under the aid to families with dependent children program has declined from 4.2 persons per case in 1970 to 3.1 persons per case in 1980. This decline reflects overall decline in fertility rates.

Changes in the number of persons receiving income support from the state are associated with a broad spectrum of factors. These factors include changes in the number of women of childbearing age, in the fertility rate, in the number of female-headed households, in the female labor force participation rate, and in social attitudes toward divorce. The individual impact of each of these factors is hard to separate from the impact of the baby boom upon the trends in the number of persons receiving income support from the state. Nevertheless, attempts to assess fully the relationship between this generation and the number of persons receiving income support should be made. For example, it is clear that the baby boom generation helps to explain the increase in the number of women of childbearing age and the increase in the number of female-headed households. Both trends will affect future caseload levels in the aid to families with dependent children program.

Health Care and Retirement. In 1970, persons over 65 constituted only 9.9 percent of the Illinois population; by 2025 they will account for more than 16 percent of the population. This aging of the population over the next 50 years implies greater demands for government services and funding in the areas of medical care, nursing homes, and retirement. A serious dilemma arises because the number of older persons will increase more rapidly than the working population. As a result the proportion of workers to older persons will drop from approximately 4 to 1 in 1980 to less than 3 to 1 in 2025. Already in response to growing concerns about this problem nationwide, the Congress is studying methods to manage the impact of the baby boom generation upon the social security system.

For more than 75 years, the changing demographic characteristics of the baby boom generation will have produced impacts upon government programs and spending for education, job training programs, correctional institutions, general assistance, aid to families with dependent children, health care, retirement, and many other government programs. While it seems clear that school enrollment will decline in the next decade, the relationships of the baby boom generation and the demands for other government programs are complicated by a variety of factors including economic growth and changes in social attitudes. These relationships must be fully examined for they provide essential clues to the future trends in government spending and revenue.

The Electronics Industry in Illinois

PHILLIP A. CARTWRIGHT

The US economy is characterized by its orientation toward high technology. High-technology industries are engaged in the innovation, development, and production of such goods as electronic components, defense systems, and computers. These industries are currently a major source of employment and revenue, and a potential source for the future. Their future growth and the location of that growth is a major concern to states. This concern has intensified as firms in numerous industries continue to migrate to states offering a more favorable economic climate — that is, relatively lower taxes and labor costs.

For many years Illinois has served as a major center for high-technology industries. However, it is no longer clear that these industries regard the Illinois economic environment as desirable. In light of this observation, it is worthwhile to observe the behavior of past industrial growth and location patterns of high-technology industries in order to gain some conception of the extent to which Illinois can depend upon these industries to provide employment opportunities and revenue in the years ahead. For purposes of this article, a detailed analysis of all industries generally considered to produce high-technology outputs is not attempted. Rather, the analysis focuses upon firms engaged in the production of electronic equipment and components (Standard Industrial Classification 36). This is an extremely broad category and aggregation of data at this level may obscure some important points. However, the intent here is to present an overview, and this can be accomplished on the basis of the data employed.

It is well known that different industries have different locational patterns. Such patterns will generally be determined by the firm's production and transportation costs and the types of inputs required in the production process. The electronics industry is unusual in that transportation cost is not a significant share of production cost. Moreover, the industry is not overly dependent on particular natural energy resources, which would tend to make some locations far more favorable than others. The most important input consists of workers who possess an extremely specialized body of knowledge and who are able to keep pace with rapid changes in technology. This particular input need serves to explain the relative mobility of the industry. It also helps explain the location of many industrial facilities in close proximity to the nation's leading universities — for example, the Massachusetts Institute of Technology and Stanford University. However, in order for the industry to consider a region as being promising for the construction of plant facilities, a favorable economic climate is also important. As the following evidence indicates, Illinois provides a clear case in point. Despite the fact that the University of Illinois, Urbana-Champaign, has a worldwide reputation for excellence in electrical engineering, the relative importance of Illinois as a commercial center for the production of electronic goods has declined in the recent past.

TABLE 1. Value of Industry Shipments in Selected States, SIC 36

Area	Level (mil $)		Percentage of US total		Annual average rate of growth	
	1965	1977	1965	1977	1965-75	1975-77
United States	35,127.3	87,602.7	-	-	6.2	16.8
Texas	635.6	3,452.6	1.8	3.9	12.2	31.2
California	3,426.9	10,865.3	9.8	12.3	7.8	22.1
Minnesota	463.7	1,498.7	1.3	1.7	8.4	20.4
New Jersey	2,353.1	3,251.0	6.7	3.7	-0.2	14.9
Illinois	4,355.1	8,693.6	12.4	9.9	4.5	13.3
New York	4,049.6	7,482.0	11.5	8.5	3.8	13.0
Massachusetts	1,778.4	3,403.7	5.1	3.9	4.9	8.8

Source: U.S. Department of Commerce, Bureau of the Census.

TABLE 2. New Capital Investment Expenditures in Selected States, SIC 36

Area	Level (mil $)		Percentage of US total		Annual average rate of growth	
	1965	1977	1965	1977	1965-75	1975-77
United States	1,045.9	2,833.2	-	-	6.0	22.9
Texas	27.4	185.1	2.6	6.5	10.5	57.9
Minnesota	10.1	40.9	1.0	1.4	9.9	25.4
California	77.1	414.7	7.4	14.6	n.a.	15.1
Illinois	110.2	183.1	10.5	6.4	3.2	9.9
Massachusetts	46.9	106.2	4.5	3.8	7.0	7.1
New Jersey	56.3	88.3	5.4	3.1	3.5	5.7
New York	140.9	258.2	13.5	9.1	5.8	2.1

Source: U.S. Department of Commerce, Bureau of the Census.

Not only is the electronics industry different from many others with respect to the required input mix, but it is also different in terms of the life cycle of the product. The process by which a new product is invented, developed, produced, and marketed is referred to as the product life cycle. Many products rapidly mature following innovation and go into mass production. In these cases, the industry is able to divorce the innovation and production processes within a short period of time, and will tend to locate plant facilities where the economic climate is most conducive to the minimization of production costs. In contrast, the innovation process plays a critical role throughout the life of many electronic products. The development of radio, television, computers, radar and navigation equipment, and electronic games provide a few examples of the continuing importance of innovation to product development and the production of electronic goods. Later, as the product matures, it becomes somewhat easier to divorce the research and development stages from the production stages. Thus, as the product

Phillip A. Cartwright is a graduate student in economics in the College of Commerce and Business Administration at the University of Illinois, Urbana-Champaign. His thanks are due Professor George W. Swenson, Jr., head of the Electrical Engineering Department at the University of Illinois, for supplying useful information for this article.

TABLE 3. Employment in Selected States, SIC 36

Area	Level (000)		Percentage of US total		Annual average rate of growth	
	1965	1977	1965	1977	1965–77	1975–77
United States	1,604.8	1,705.5	–	–	-0.5	5.9
Texas	35.5	67.8	2.2	4.0	3.4	16.9
Minnesota	20.2	29.0	1.3	1.7	0.8	14.8
Illinois	187.7	155.3	11.7	9.1	-2.9	5.1
California	173.4	228.8	10.8	13.4	1.9	4.8
New Jersey	124.3	77.6	7.8	4.6	-5.3	3.9
Massachusetts	93.8	77.9	5.8	4.6	-1.6	-1.1
New York	144.0	148.6	12.1	8.7	-2.3	-1.7

Source: U.S. Department of Commerce, Bureau of the Census.

life cycle continues through time, production cost minimization becomes an increasing factor of importance in the location decision.

The product life cycle just described has been evident in the electronics industry. A brief historical review will serve to prove the point. Initially, New York was the major center for innovation and development of many electronic goods. Radio was first developed in New York, yet by 1930 the market had matured and the Chicago area had taken the lead in manufacturing. This same chain of events was repeated 20 years later in the development of television. Following World War II, the Midwest surpassed the East to become the leader in the production of television sets. This pattern also developed in the case of phonographic equipment. Although a considerable amount of innovation has continued to take place in the East, manufacturing has moved to the Midwest, Southwest, West, and abroad.

Table 1 shows the geographical behavior of the value of industry (SIC 36) shipments over the period 1965–77. The states shown are those which are most often cited as being centers for the production of electronic goods and these states have been ranked in order of the growth recorded over the years 1975–77. Three of the seven states shown have experienced annual rates of growth in excess of that shown for the nation. The 1975–77 growth rates shown for Texas, California, and Minnesota exceed the 16.8 percent national rate of growth. The value of industry shipments grew by 13.3 percent in Illinois. A look at the total percentage of the national total contributed by each state in 1965 and 1977 tells a similar story. Texas, California, and Minnesota increased their percentage contribution to the national total, while all other states shown experienced a decline. Of the states which recorded a decline, the contribution of Massachusetts dropped by 1.2 percent and the Illinois percentage slid by 2.5 percent. However, Illinois still contributed a healthy 9.9 percent to the total in 1977. New York and New Jersey had equivalent drops of 3.0 percent.

Table 2 shows rates of growth of new capital investment expenditures and percentage contribution to the US total for the selected states. Again, states have been ranked by annual rate of growth, 1975–77. These data seem to confirm the evidence shown in Table 1. Only two states, Texas and Minnesota, had annual rates of growth which exceeded that of the nation. Texas posted a most impressive 57.9 percent annual growth rate. Texas, Minnesota, and California all experienced increases in the percentage contribution of new capital expenditures to the US total. The share of California's contribution rose by 7.2 percent between 1965 and 1977. Of those states in which the total contribution dropped, the respective drop of 4.4 and 4.1 percent in New York and Illinois were most severe, and reflect the decline in the willingness of the industry to develop new facilities in these areas.

The data in Table 3 show employment figures, growth rates, and percentage contributions to the aggregate US numbers. It was stated earlier that the ability of an industry to provide employment is a matter of considerable importance in evaluating its relative place in a state's economy. With the current interest in maintaining strong armed forces, the Department of Defense budget is expected to increase. This increase will be accompanied by higher government expenditures for electronic systems and equipment. In addition, the market for consumer electronic goods is expected to remain strong as home information systems and the videodisc grow in popularity. Fortunately, the employment statistics for Illinois may give more reason for optimism than those observed thus far. The annual growth rates in Texas and Minnesota were well above the national average. Despite the fact that the annual growth rate in Illinois dropped slightly below that shown for the US, Illinois ranked third among the states shown. The percentage contribution of electronics industry employment in Illinois compared with that of the nation dropped by 2.6 percent, over the 1965–77 period, which is not good, but at least is not as sharp as the 3.4 percent drop experienced in New York.

Table 3 provides a summary of these observations. Looking at percentage contributions to US totals, the results are quite consistent in all categories considered. California, Minnesota, and Texas have shown gains in their shares of the US figures, while Illinois, Massachusetts, New Jersey, and New York show declines. The migration of the electronics industry from the East to the Southwest and West is validated by the data shown. Although Minnesota has experienced a gain in industry activity one should recognize that the state's percentage contribution to the national totals is relatively low, and the importance of the growth should not be exaggerated. In much the same spirit, it is critical to recognize that despite the decline that has occurred in Illinois, the percentage contributions are extremely high. This is particularly true in the cases of the value of new industry

TABLE 4. Gains and Losses in Percentage Share of US Totals, 1965-77, SIC 36

Area	Value industry shipments		New capital investment		Employment	
	Loss	Gain	Loss	Gain	Loss	Gain
California		X		X		X
Illinois	X		X		X	
Massachusetts	X		X		X	
Minnesota		X		X		X
New Jersey	X		X		X	
New York	X		X		X	
Texas		X		X		X

(Continued on page 10)

Airline Service in Illinois, 1967-80

J. GREGORY PARRISH

Air travelers to and from Illinois cities have experienced rapid change in flight schedules, available seats, and type of aircraft flown in the past decade and a half.

In this article I shall analyze what happened to air service in 20 selected Illinois communities, 1967–81, with particular emphasis on the accelerated changes since the enactment of the Airline Deregulation Act of 1978.

The Years of Modest Growth and Change, 1967–77

Air travel was well established in Illinois cities by 1967. As shown in Table 1, there were 23,000 available seats every day (excluding Saturday and Sunday) in and out of 20 selected cities in 1967. By 1977 the number of airline seats available daily had grown to 27,000, a gain of 4,000 seats or 17 percent.

This overall gain obscures some important changes among the Illinois cities. A few cities, such as Champaign-Urbana, Rockford, and Peoria, enjoyed gains in seats of 136, 105, and 80 percent respectively. In contrast, a few cities, such as Galesburg, Sterling/Rock Falls, and Springfield suffered declines in daily available airline seats of 90, 60, and 24 percent respectively.

The Types of Carriers. There were three types of carriers, providing service to Illinois cities during this period (Table 2). Ozark is classified as a regional carrier, that is, interstate, but not transcontinental. Ozark dominated air service in Illinois at this time, providing over 90 percent of all seats.

TABLE 1. Number of Airline Seats Available Daily in Selected Illinois Cities, 1967-77

	Year				Change 1967-1977	
	1967	1969	1976	1977	Number	Percent
	Cities with over 70,000 population					
Champaign-Urbana	1,428	2,856	3,464	3,368	1,940	136%
Peoria	3,676	6,272	6,552	6,632	2,956	80
Springfield	4,064	3,008	3,500	3,088	-976	-24
Decatur	1,176	1,384	1,272	1,328	152	13
Rockford	684	816	768	1,400	716	105
Bloomington-Normal	864	768	768	768	-96	-11
Moline/Rock Island/ Davenport	5,394	8,823	7,809	6,484	1,090	20
	Cities with under 70,000 population					
Quincy	1,356	1,104	1,176	1,176	-180	-13
Marion/Herrin	840	1,428	672	768	-54	-6
Mattoon/Charleston	840	768	768	768	-72	-9
Mt. Vernon	768	768	768	768	0	0
Sterling/Rock Falls	960	768	384	384	-576	-60
Galesburg	1,044	1,003	384	104	-940	-90
		All cities				
All cities	23,094	29,771	28,285	27,054	3,960	17

Source: Official Airline Guide and airline timetables.

There were two transcontinental carriers operating in and out of Illinois during this period. One was United Airlines. It provided service only to the Moline/Rock Island/Davenport area. The other was Continental, which served Peoria only.

A number of commuter, that is, short-haul, largely intrastate, airlines, began operation during this period. Most failed after a few months. Air Illinois began service in Springfield in 1975. It survives and has been expanding. Britt Airlines began service to several Illinois communities in 1977. It also survives and has been expanding (Table 2).

The Beginning of DC-9 Jet Service. The major change in quality of air service to Illinois cities was in 1968 when DC-9 jet service was introduced by Ozark. This brought a revolutionary upgrading in air travel. The DC-9 provided 90-seat capacity in contract to 36 seats in the old propeller-driven Martin 404s, and the 48 seats in the prop-jet F-227s.

The jump in air speed was spectacular. The propeller and prop-jet planes could average from 125 to 300 miles an hour. The DC-9 could travel at 572 miles an hour.

The older planes were limited to travel in weather below 8,000 feet, which is often turbulent. The DC-9 could travel "above the weather" at 30,000 to 35,000 feet. It could fly around storm centers thus giving passengers a much smoother ride.

In 1969, Ozark introduced DC-9 jet service between Peoria, Champaign-Urbana, and Dulles International Airport, Washington, D.C., and New York's LaGuardia Airport. Passenger response was spectacular. This service was one of the most successful routes ever introduced in the United States by any regional carrier. Ozark began jet service to Denver in 1975 and in the same year United introduced service to the West Coast from the Moline/Davenport area.

The Years of Very Rapid Change, 1978–80

Airline service in Illinois cities experienced unprecedented changes after 1978. Many factors were involved. The deregulation of airlines under the Airline Deregulation Act of 1978 was certainly one major factor, as will

J. Gregory Parrish is a postgraduate student in finance at the University of Illinois at Urbana-Champaign. He received his B.S. in marketing in 1978 and is interested in transportation with special emphasis on air transportation.

TABLE 2. Airlines Serving Selected Illinois Cities, 1967-80

City	Name of airline				
	1967	1970	1975	1977	1980
Champaign-Urbana	Ozark[a]	Ozark	Ozark	Ozark	Ozark Britt
Peoria	Ozark	Ozark	Ozark Continental	Ozark Continental	Ozark Continental Britt Miss. Valley Air Ill.
Springfield	Ozark	Ozark Hub	Ozark Air Ill.	Ozark Air Ill.	Ozark Britt Air Ill.
Decatur	Ozark	Ozark	Ozark	Ozark	Ozark Britt
Rockford	Ozark	Ozark	Ozark	Ozark	Ozark TWA
Bloomington/Normal	Ozark	Ozark	Ozark	Ozark	Britt
Moline/Rock Island/ Davenport	Ozark United	Ozark United	Ozark United	Ozark United	Ozark United Britt Miss. Valley
Quincy	Ozark	Ozark	Ozark	Ozark	Ozark
Marion/Herrin	Ozark	Ozark	Ozark	Ozark	Ozark
Mattoon/Charleston	Ozark	Ozark	Ozark	Ozark	Britt
Mt. Vernon	Ozark	Ozark	Ozark	Ozark	Air Ill.
Sterling/Rock Falls	Ozark	Ozark	Ozark	Britt	Britt
Galesburg	Ozark	Ozark	Ozark	Britt	Britt

Source: *Official Airline Guides* and individual airline timetables.

[a] Ozark is classified as a regional airline: Britt, Mississippi Valley, Air Illinois as local commuter airlines, United, TWA, Continental are transcontinental airlines.

be discussed later. Another was the rapid rise in fuel costs. A third was the higher operating costs due to substantial wage and salary increases granted under union contracts. A fourth was the slowup in the rate of growth of air travel.

Airline Operation Before Deregulation. Under the authority of the Civil Aeronautics Act of 1938 as amended, airlines were granted certificates of public convenience on various airline routes, by the Civil Aeronautics Board. With this authority the CAB limited competition on most routes, national and regional. Further, under a complicated formula, the CAB provided subsidies on many routes that might not otherwise have been operated because of unprofitability. It was under this regulatory umbrella that airline service developed in Illinois in the early 1950s.

Airline Operation after Deregulation. The Airline Deregulation Act of 1978 brought a revolutionary change in the regulatory environment. It provided for deregulation of the airlines over a period of five years. It provided for the end of protected competition via certificates of public convenience. It provided for phasing out of subsidies. It provided for easy entry of airlines into all markets.

The impact of deregulation, plus such other factors as rising fuel costs, caused Ozark to move from a strictly midwest regional carrier to a more long-distance carrier. It moved toward semitranscontinental service by opening up routes from St. Louis to Dallas, Houston, New Orleans, Orlando, Miami, Tampa, and Fort Lauderdale. Ozark drastically cut back on short-haul, light-passenger-load service to smaller Illinois communities.

As Ozark abandoned or reduced service to many smaller Illinois communities the existing commuter airlines, such as Air Illinois and Britt, began to expand operations. A new commuter airline, Mississippi Valley, began operation in 1980 (see Table 2).

The changes of 1978–81 in airline service to the 20 selected cities are summarized in Table 3 (p. 10).

Eight cities experienced increases in number of flights during 1978–81. In contrast, five cities experienced decreases in number of flights. In some instances the cutback was over 40 percent.

Measured by number of available seats, three cities enjoyed increases in seats during this period. The total increase, however, was a very modest 19 percent. On the other hand, 10 cities experienced decreases in airline seats. Their total loss was 18 percent.

Summary and Outlook

Availability of air service in Illinois cities has undergone drastic change since 1978 and makes for a very mixed pattern. Eight cities, mostly the larger cities, have enjoyed more flights daily. Five cities, mostly the smaller ones, have experienced fewer flights.

Measured by number of available seats, the changes have been even sharper. Three cities, the larger ones, have enjoyed more daily seats. But 10 cities, including almost all the smaller ones, have suffered declines in available daily seats. The latter is due in large part to the withdrawal of Ozark and the substitution of the smaller aircraft operated by the commuter airlines.

Rapid change will undoubtedly continue as regulation is completely phased out by 1983. It appears air service will continue to be adequate for the larger Illinois cities. The outlook is more cloudy for the smaller communities, as Ozark reduces service or pulls completely out of the smaller cities as it strives to enter the more profitable long-haul markets. If this withdrawal continues, the big question is: will existing and new commuter airlines be able to fill the gaps left by Ozark? To date the expansion of the commuter airlines is encouraging. But it must be kept in mind that the aircraft operated by the commuters is slower in air speeds, is limited in capacity, and cannot fly above the weather.

TABLE 3. Changes in Number of Weekday Flights and Seats, Selected Illinois Cities, 1978 to May 1981

City	Number of flights 1978	Number of flights May 1981	Change 1978-May 1981 Number	Change 1978-May 1981 Percent
	Cities experiencing increases in number of weekday flights, 1978 - May 1981			
Peoria	68	84	16	24
Springfield	50	60	10	20
Decatur	25	40	15	60
Bloomington-Normal	16	43	27	68
Galesburg	8	24	16	200
Champaign-Urbana	41	47	6	15
Rockford	16	19	3	19
Quad Cities[a]	70	77	7	10
Total	294	394	100	34%
	Cities experiencing decreases in number of weekday flights, 1978-May 1981			
Quincy	28	15	-13	-46
Marion/Herrin	11	6	-5	-46
Mattoon/Charleston	16	8	-8	-50
Mt. Vernon	16	10	-6	-38
Sterling/Rock Falls	28	16	-12	-43
Total	99	55	-44	-44
Grand total	393	449	56	14%
	Cities experiencing increases in number of weekday seats, 1978-May 1981			
Rockford	1,600	1,918	318	20
Galesburg	104	312	208	200
Quincy	1,424	1,500	76	5
Total	3,128	3,730	602	19%
	Cities experiencing decreases in number of weekday seats, 1978-May 1981			
Champaign-Urbana	3,424	3,028	-396	-12
Peoria	6,674	6,470	-204	-3
Springfield	3,892	3,026	-866	-22
Decatur	1,824	1,400	-424	-23
Bloomington-Normal	768	629	-139	-18
Marion/Herrin	736	600	-136	-19
Mattoon/Charleston	768	104	-664	-86
Mt. Vernon	768	140	-628	-82
Sterling/Rock Falls	384	208	-176	-46
Quad Cities[a]	7,367	5,130	-2,237	-30
Total	26,605	20,735	-5,870	22%
Grand total	29,733	24,465	-5,268	18%

Source: *Official Airline Guides.*

[a] Moline, Davenport, Rock Island.

(Continued from page 7)

shipments and employment where the data show Illinois contributing 9.9 and 11.7 percent, respectively.

On the basis of growth and magnitude, the data show California and Texas in leading positions. This is not surprising. California has an advantage in that it has excellent educational facilities and moderate labor costs. Texas has what is generally regarded as an exceptionally healthy economic environment which encourages new business investment and is characterized by low labor costs. If Illinois is to maintain its important position in the structure of the electronics industry, it is important for the state to stimulate innovation by establishing a favorable environment for such activity. Several states such as Arizona, California, North Carolina, and Minnesota have recently introduced specific programs to encourage high-technology firms to relocate within their boundaries, and it seems appropriate that Illinois should make such an effort. The University of Illinois has vast and world-renowned educational facilities for training electrical engineers, and many of the University's engineering graduates prefer to find employment in Illinois. Unfortunately, most of these graduates must leave the state to find employment with high-technology firms. The importance of efficient labor markets relative to industry location decisions seems to be clear. In addition, excessive taxes and regulation are not stimulants to new investment.

Illinois Business Indexes

Item	April 1981	March 1981	February 1981	January 1981	April 1980
Leading indicator (1969=100)	88.7	88.2	87.8	88.3	82.5
Coincident indicator (1969=100)	139.0	147.3	154.7	146.5	121.2
Employment-manufacturing (in thousands)	1,183.4	1,180.2	1,176.8	1,179.2	1,235.9
Average weekly hours-manufacturing	40.1	40.2	38.9	40.1	40.2
Weekly earnings-manufacturing	$351.28	$351.35	$339.21	$345.66	$309.26
Layoff rate-Chicago	0.7	0.7	1.0	1.2	1.3
Help wanted advertising-Chicago (1967=100)[1]	55.0	70.0	71.0	66.0	74.0
Help wanted advertising-St. Louis (1967=100)[1]	54.0	54.0	58.0	58.0	62.0
Ordinary life insurance sales (in millions)	$1,916	$1,857	$1,575	$1,385	$1,648
Retail sales (in millions)[2]	$4,171	$4,203	$3,712	$3,777	$3,784
Coal production (in thousands)	5,664	5,489	5,620	5,710	5,664
Petroleum production (in thousands)	2,030	1,960	1,770	1,965	1,921
Vendor performance, seasonally adjusted (percent)	52.2	47.0	47.9	49.7	42.4
Building permits (in thousands)					
Residential housing units	1.984	1.88	.96	.74	.94
Value of residential housing	$87,508	$87,132	$39,756	$32,386	$49,642
Value of nonresidential construction					
Industrial buildings	$49,943	$13.341	$29,820	$11,458	$22,819
Office, banks, and professional buildings	$37,833	$33,076	$21,410	$37,267	$36,516
Stores and other mercantile buildings	$17,652	$26,710	$5,668	$11,269	$29,827
Other	$53,678	$10,545	$20,258	$60,167	$27,560
Consumer price index					
North Central US	143.7	-	142.3	-	131.3
North Central/population more than 400,000	145.9	-	144.0	-	133.2
North Central/population 385,000 to 1,250,000	143.5	-	142.8	-	130.9
North Central/population 75,000 to 385,000	140.2	-	139.7	-	128.9
North Central/population less than 75,000	141.1	-	139.6	-	128.7
Chicago	263.7	259.7	259.6	258.9	240.1
St. Louis	-	259.3	-	255.7	-
Prices Received by farmers	130.0	131.0	131.0	133.0	104.0
	1960:IV	1980:III	1980:II	1980:I	1979:IV
PERSONAL INCOME IN ILLINOIS[2] (in millions of dollars)					
PERSONAL INCOME by place of residence	$125,688	$123,234	$119,008	$116,227	$113,875
TOTAL LABOR AND PROPRIETORS' INCOME by place of work					
by type					
Wage and salary disbursements	$ 79,180	$ 77,336	$ 75,920	$ 74,145	$ 72,586
Other labor income	8,181	8,254	8,023	7,593	7,287
Proprietors' income	6,552	6,620	6,284	6,894	7,567
Farm	635	914	894	1,252	1,990
Nonfarm	5,918	5,706	5,390	5,641	5,577
by industry					
Farm	1,053	1,328	1,295	1,640	2,355
Nonfarm	93,061	90,882	88,932	86,992	85,084
Private	81,397	78,973	77,612	75,863	74,187
Ag. serv., for., fish., and other	206	207	208	205	205
Mining	951	885	901	886	866
Construction	5,473	5,198	5,254	5,117	5,154
Manufacturing	27,379	26,610	26,265	25,605	24,446
Nondurable goods	8,554	8,604	8,328	8,279	7,951
Durable goods	18,825	18,005	17,938	17,326	16,495
Transportation and public utilities	7,724	7,475	7,388	7,511	7,194
Wholesale trade	8,124	7,868	7,749	7,481	7,237
Retail trade	8,656	8,514	8,280	8,288	8,330
Finance, insurance, and real estate	6,416	6,245	6,000	5,743	5,753
Services	16,467	15,972	15,566	15,025	15,003
Government and government enterprises	11,664	11,909	11,321	11,129	10,897
Federal, civilian	2,189	2,146	2,095	2,026	2,004
Federal, military	642	550	596	577	556
State and local	8,833	9,213	8,630	8,526	8,338
INCOME BY PLACE OF WORK					
Wage and salary disbursements	79,180	77,336	75,920	74,145	72,586
Farm	375	370	360	348	329
Ag. serv., for., fish., and other	126	128	130	129	131
Mining	737	683	699	681	667
Construction	4,587	4,388	4,462	4,264	4,259
Manufacturing	21,525	22,827	22,580	22,098	21,132
Nondurable goods	7,420	7,452	7,227	7,212	6,937
Durable goods	16,105	15,375	15,353	14,886	14,195
Transportation and public utilities	6,520	6,297	6,235	6,372	6,113
Wholesale trade	7,045	6,814	6,766	6,519	6,311
Retail trade	7,229	7,119	6,954	6,922	6,992
Finance, insurance, and real estate	5,037	4,900	4,798	4,530	4,545
Services	12,686	12.256	11,967	11,488	11,533
Government and government enterprise	11,303	11,523	10,970	10,795	10,574
Federal, civilian	2,094	2,052	2,004	1,941	1,921
Federal, military	642	550	596	577	556
State and local	8,567	8,922	8,370	8,277	8,097

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[1] The Conference Board, *Help Wanted Advertising*, April 1981. [2] Most recent month is a BEBR estimate.
[3] Bureau of Economic Analysis, *Major Sources of Personal Income in Illinois*, April 1981.

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Comparative Economic Data for Selected Illinois Cities, April 1981

	Construction activity				Electric power consumption (000,000 kwh)	
	Nonresidential buildings		Residential buildings			
	April 1981	April 1980	April 1981	April 1980	April 1981	% change from April 1980
ILLINOIS	2539	2355	1164	719	3318.3[a]	-4.5
NORTHERN ILLINOIS						
Chicago	47	43	8	16	1579.2	-5.2
Aurora	21	20	17	20	128.4	-3.3
Elgin	56	48	6	17	83.3	-6.6
Joliet	44	50	3	3	348.1	-3.1
Kankakee	12	5	0	0	74.9[b]	-6.5
Rock Island-Moline	35	24	10	4	130.7[c]	+5.9
Rockford	27	30	10	6	147.6	-4.7
CENTRAL ILLINOIS						
Bloomington-Normal	41	27	28	17	51.2	0.0
Champaign-Urbana	15	22	12	12	54.1	-2.4
Danville	26	5	0	1	46.4	+1.8
Decatur	20	26	14	4	142.6	4.8
Galesburg	15	17	2	3	28.5[b]	-8.1
Peoria	26	23	10	8	183.5	-9.0
Quincy	26	23	7	2	35.7	-15.0
Springfield	28	23	16	4	122.2	-0.2
SOUTHERN ILLINOIS						
East St. Louis	0	0	0	0	23.0	-5.7
Alton	4	1	1	3	80.1	+4.8
Belleville	5	7	0	1	27.2	-3.6
Carbondale-Murphysboro	6	10	0	2	31.6	-19.4

[a] Total for cities listed. [b] Includes immediately surrounding territory. [c] Includes East Moline.

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The 1981 Coal Negotiations: A Historical Perspective
Part II: Structural Change in the 1960s and 1970s

JOHN F. SCHNELL

This is the second article of a two-part series on the 1981 national coal negotiations between the United Mine Workers of America (UMW) and the Bituminous Coal Operators' Association (BCOA). It examines the structural changes in the coal industry from the early 1960s to the present, leading to the two longest strikes in the history of labor relations in bituminous coal. This is the third stage of the evolution of collective bargaining in the coal industry. The first stage, from 1890 to 1950, was characterized by the union's attempt to secure an organizational base by eliminating interregional wage competition. In the second stage, from 1950 to the early 1960s, labor relations were stable, cooperative, and sometimes collusive. No national strikes occurred. The beginning of Stage III was marked by the increasing use of cheap imported oil as a substitute for coal; internal union disputes; and oil industry diversification, particularly in the predominantly nonunion coal fields of the West. As the petroleum industry became an integrated energy producer in the 1960s and 1970s, acquiring an influential position in the operation of coal mines and in the control of coal reserves, the shape of collective bargaining in coal was altered.

The 1977–78 Negotiations

The 110-day strike began at midnight on 6 December 1977. From the operators' perspective, the issues were improved productivity and labor stability. The latter meant eliminating the wildcat strikes which were plaguing the industry. The Welfare and Retirement Fund, an industry-wide pension and benefit program financed by production royalty payments by the operators, was and would again become a bargaining issue. Wildcat strikes had hurt productivity and contributed to the Welfare Fund's poor financial condition.

Dissension was growing in both camps. Rife with internal disputes, the UMW entered the contract talks with less than complete solidarity. Generally dissatisfied with their leadership, the rank and file believed that the current structure was ineffective or unresponsive in dealing with such local issues as mine safety and that the ability to walk off a job should go unhampered. The mine operators were only slightly more unified. Several companies, who felt their interests would be better served by separate bargaining, threatened to leave the BCOA.

It appeared that the operators had little interest in an early end to the strike. The steel industry, operating at less than full capacity, had unneeded coal reserves. Steel was wary about granting any concessions to coal miners that would become targets for its own workers, particularly a local right-to-strike provision. It also wanted to keep BCOA's offer in line with the 1977 money package negotiated with the Steelworkers. After one month of the strike there had been no appreciable impact on energy supplies. Electric utilities had amassed vast stockpiles and, since the UMW controlled less than half of the country's coal production, nonunion mines were able to service a good portion of the remaining market.

The union's bargaining team, led by an embattled president, Arnold Miller, conceded early to the operators' demand for penalties to wildcat strikers. Greater direct compensation benefits were expected in return, but the operators pressed for further concessions and the talks broke off.

On February 20, the UMW reached a tentative agreement with a company outside the BCOA structure — Gulf Oil's Pittsburgh and Midway (P&M) subsidiary. This settlement did not contain the stringent production control clauses desired by the BCOA and the association refused publicly to allow this to become a pattern for the national agreement, suggesting that the problems be submitted to binding arbitration. The union refused and appeared ready to accept nothing less than the P&M agreement. This same oil-owned coal company had earlier reached the pattern-setting agreement in the West. The

The International Role of the Dollar *By Richard D. Bartel* / *Page 5*

union's rank and file were becoming unified. They believed that the BCOA position was an all-at-once effort by the operators to destroy their union.

Governmental pressure was now beginning to mount on the operators. Following the P&M settlement, management was cast as the party responsible for a continuing strike. President Carter met with top executives of several of the oil companies with coal subsidiaries. The administration reportedly threatened to make it difficult for oil firms to obtain strip-mining and other permits and to support a congressional bill banning the leasing of government-owned lands to oil-owned coal companies. Structural change in the industry was affecting the way governmental pressure was being applied to achieve a collective bargaining settlement.

Although the initial settlement based on the P&M agreement was rejected by the rank and file by a two-to-one margin because of deductible payments included in the medical benefits provision, the contract finally ratified was still a version of the oil subsidiary's overture.

The 1981 Negotiations

Control by the Major Operators. The story of the recent contract talks and the second longest bituminous coal strike starts almost two years before the last agreement expired. Consolidation Coal (Consol) left the BCOA. Consol, a subsidiary of Continental Oil (Conoco) is the second largest coal producer and the largest employer of UMW labor. The company felt its interests were not being represented adequately in the 130-member employers' association. It and the rest of the large operators did not have enough control. The major coal producers — oil, steel, and the electric utilities — wanted to structure labor relations according to their interests, unencumbered by the disparate views of the many smaller BCOA members. The chairman of Conoco reportedly gave his assurance of returning, if greater control were given to the major operators and, in particular, to Consol.

The steel companies threatened to follow Consol's lead. Sensing the vulnerability of the association's position as the industry's bargaining arm without Consol and the steel companies in the upcoming negotiations, 40 members of the BCOA's board approved a plan to give major coal companies greater control in the 1981 contract talks. Consol returned. Its president, who came from parent oil, would be the industry's chief negotiator in the upcoming talks with the UMW.

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Director, ROBERT W. RESEK; *Assistant to the Director,* WILLIAM R. BRYAN; *Editor,* NELLE WAGNER; *Research Assistants,* THOMAS B. BRYAN, PHILLIP A. CARTWRIGHT, JOHN F. SCHNELL, and RUSSELL E. SMITH.

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The UMW asserted it was prepared to strike against any company which followed Consol out of the national bargaining forum and which refused to accept a BCOA contract in 1981. But it was doubtful that the union had the organizational and financial strength to carry on several separate negotiations. The BCOA would have been weakened severely, portending an end to the industry-wide bargaining structure established by John L. Lewis in 1950. Any pattern in 1981 would have had to follow the Consol bargaining, not that with the BCOA.

Bargaining Goals and Environment. Coming into the 1981 negotiations, the coal industry was not in the best shape. The nation's coal fields had been quiet since the last contract strike. Almost 2.3 million man-days were lost from wildcats in 1977, but only 230,000 were lost in 1978 and only 27,000 in the first two months of 1979. However, coal demand was weak, and there had been a surge in coal imports. There was uncertainty over the cost of complying with air pollution and stripmining regulations and general confusion in the government's policy toward coal use. There was a slump in steel production. Exports of metallurgical coal consequently were down. All of this led to excess capacity and layoffs. Coal was losing its competitive edge over oil because of high cleaning, shipping, and burning costs.

In an attempt to revive the industry, the operators wanted to get a contract in 1981 which would enable them to reverse the declining trend in productivity. They wanted to be able to operate the mines continuously. The current contract prohibited Sunday work (Saturday work was allowed and could be scheduled as overtime) and made it difficult to schedule overnight work turns. The major operators wanted to follow the path of their parent companies. Steel blast furnaces, oil wells, and oil refineries require huge capital investments and represent high fixed costs. Continuous production becomes necessary. Similarly, the new "longwall" mining machines, costing \$3–5 million each, were being counted on to increase coal production and output per worker in unionized mines. In addition, the operators wanted to scrap the multiemployer pension program — the Welfare Fund — and institute private company-by-company retirement coverage. Mine closings had left surviving firms with an extra burden in financing the fund. The funding obligation was seen as a major cost factor in unionized coal production. With smaller coal companies failing, the industry's larger firms wanted to gain control over their individual cost structures, decreasing the uncertainty of their future obligations.

The union wanted to restore the cost-of-living escalator given up in the last contract, gain a basic wage increase, and following the rash of mine fatalities the preceding fall, institute stricter mine safety controls. But the demand for major changes would come from management. The union would certainly oppose scheduled Sunday work and the dissolution of the Welfare Fund. The union believed it had conceded much in granting the industry a free hand in mechanization in Stage II in order to establish this fund. Portability of accumulated years of service would be affected, and individual plans would weaken the need for industry-wide bargaining, another long-sought goal of the union. In general, the UMW was concerned about its own security. Management was trying to weaken or eliminate certain standards and clauses in the existing contract which, at least the rank and file believed, went to the heart of the union's sovereignty. In particular, the operators wanted to do away with the clause requiring their payment of a royalty into the Welfare Fund for the purchase of nonunion coal and one allowing only unionized subcontractors to work at UMW mines. Because of environmental regulations, some electric utilities that owned "captive" UMW mines had been forced to purchase low-sulfur coal, produced largely by nonunion coal fields in the West. Larger mines market much of the coal produced by smaller, sometimes nonunion, mines.

It would have seemed that the parties were more than willing to avoid a strike to prove that coal could be a reliable source of energy, a viable substitute for imported oil. The internal political struggles that the UMW faced under former president Miller during the previous negotiations would be absent in these talks under current president Samuel M. Church, Jr. Control of the BCOA by the major producers improved the cohesion of the industry group. They were fragmented during the last negotiations; by now they spoke with a single voice. The UMW appeared similarly united, but this was only a temporary appearance. The talks began on 22 January 1981.

The Bargaining Process. Tensions began to heighten in early March when the union staged a two-day walkout to protest President Reagan's plan to cut federal subsidies to the trust fund which pays black-lung benefits to stricken miners and to tighten the eligibility requirements of this plan. The timing of the walkout was bad. Less than three weeks before the contract expired, the union was giving the operators the impression that it was not going to be very sensitive to their needs; and even before the union's economic demands were presented, both sides seemed unwilling to compromise on one major issue — replacement of the multiemployer Welfare Fund with separate private plans. Demands by the industry for work rule changes had moderated. The operators were no longer insisting on around-the-clock, seven-day-a-week mining. The UMW also appeared ready to retreat. They were likely to accept a basic wage increase not indexed to the cost of living and did not expect to get more than the 37 percent wage-and-benefit package negotiated earlier in the West. Gulf's P&M subsidiary had again set the pattern in the West and this agreement was influencing the national talks. In fact, a member of the BCOA was known to have pressured P&M to resist the UMW's demand for a cost-of-living escalator in the western package.

It appeared that the industry and the union were not going to achieve their first peaceful settlement since 1964. The formal meetings had stopped in the week prior to contract expiration and the deadline had been passed which would have allowed the 10-day rank-and-file ratification process to work without a walkout. But presumably, Church and Bobby R. Brown, the BCOA's chief negotiator, continued to talk by telephone and on the morning of March 23 a tentative agreement was reached. The UMW's baragining council, composed of elected district leaders, approved the proposed settlement by a 21-14 vote. The operators achieved most of their continuous-operation workrule changes, conceding the right to *schedule* Sunday work in exchange for a retraction of the clause *prohibiting* Sunday work. UMW leaders, although as it turned out *not* the rank and file, were willing to trade away royalty payments on the purchase of nonunion coal along with the subcontracting clause (which had been found to be illegal by a federal court) for a lucrative benefit package and restoration of the Welfare Fund.

Church had miscalculated the feelings of the rank and file, particularly at a time when local elections were being held. Dissident candidates for district offices opposed the contract to bolster their campaigns, asserting that the royalty payment and subcontracting concessions would threaten the very survival of the UMW by allowing even greater inroads to be made by the nonunion companies that were already a major threat. The union could claim control of only 44 percent of the country's coal production, down from 70 percent in 1974. On April 2 the tentative agreement was rejected by more than two-to-one, and the strike was on its way. (The contract passed by a 56 percent majority in Illinois's 63 UMW locals.)

Church correctly calculated the economic returns from his concessions. The money value of the royalty payments ($52 million since 1964) was far less than that received in the widow's pension benefits ($100 million in 1982 alone) he extracted in exchange. Indeed, the operators could evade the royalty payments, as US Steel had, by establishing a subsidiary corporation beyond the reach of the UMW contract. The membership, wary of the mounting control of the industry by huge oil, steel, and utility companies, would not be persuaded.

The mineworkers' president and the major producers wanted to return to a previous era in labor relations — Stage II, a time of cooperation and stable peace — but that environment had been achieved with the force of Lewis's autocratic control. Democratic reforms came to the UMW in 1972, allowing greater rank-and-file control over union policies. To be effective, the union's political structure requires continual communication through all levels. Communications broke down in this factious union during the contract talks. Miners generally distrust coal operators and are suspicious of any agreement reached without a strike. The situation was made more volatile by the district campaigning. Confusion over the union's bargaining strategy and the terms of the proposed settlement made matters worse. Two announcements from the bargaining team reached the membership at the same time. One stated that the union would not concede on the royalty payment issue, that this would hurt the financial position of the Welfare Fund. The other bulletin

(continued on p. 11)

Illinois Business Indexes

Item	May 1981	April 1981	March 1981	February 1981	May 1980
Leading indicator (1969=100)	88.6	88.5	88.1	87.8	80.1
Coincident indicator (1969=100)	132.7	139.7	147.5	154.6	122.6
Employment-manufacturing (in thousands)	1185.5	1185.0	1177.9	1176.8	1231.7
Average weekly hours-manufacturing	40.7	40.2	40.1	39.8	39.4
Weekly earnings-manufacturing	$361.62	$353.76	350.88	339.21	311.26
Layoff rate-Chicago	0.7	0.7	0.7	1.0	1.6
Help wanted advertising-Chicago (1967=100)[1]	65.0	55.0	70.0	71.0	67.0
Help wanted advertising-St. Louis (1967=100)[1]	56.0	54.0	54.0	58.0	58.0
Ordinary life insurance sales (in millions)	$ 1,758	$ 1,916	$ 1,857	$ 1,575	$ 1,581
Retail sales (in millions)[2]	$ 4,220	$ 4,184	$ 4,237	$ 3,712	$ 4,092
Coal production (in thousands)	7,916	5,664	5,489	5,620	5,585
Petroleum production (in thousands)	2,095	2,030	1,960	1,770	1,980
Vendor performance, seasonally adjusted (percent)	49.5	52.2	47.0	47.9	30.2
Building permits (in thousands)					
Residential housing units	1.34	1.98	1.88	.96	1.15
Value of residential housing	$69,418	$87,508	$87,132	$39,756	$52,525
Value of nonresidential construction					
Industrial buildings	$17,924	$49,943	$13,341	$29,820	$25,756
Office, banks, and professional buildings	$41,075	$37,833	$33,078	$21,410	$25,861
Stores and other mercantile buildings	$ 9,786	$17,652	$26,710	$ 5,668	$34,482
Other	$51,034	$53,678	$61,720	$10,545	$40,168
Consumer price index					
North Central US	-	143.7	-	142.3	-
North Central/population more than 400,000	-	145.9	-	144.0	-
North Central/population 385,000 to 1,250,000	-	143.5	-	142.8	-
North Central/population 75,000 to 385,000	-	140.2	-	139.7	-
North Central/population less than 75,000	-	141.1	-	139.6	-
Chicago	264.5	263.7	259.7	259.6	243.1
St. Louis	268.0	-	259.3	-	241.8
Prices received by farmers	130.0	131.0	131.0	131.0	105.0
	1980:IV	1980:III	1980:II	1980:I	1979:IV
Personal income (in millions)	$125,638	$123,234	$119,008	$116,227	$113,875

[1] The Conference Board, *Help Wanted Advertising*, May 1980. [2] Most recent month is a BEBR estimate.

Comparative Economic Data for Selected Illinois Cities, May 1981

	Construction activity				Electric power consumption (000,000 kwh)		Employment (000)		Estimated work force unemployed (percent)	
	Nonresidential buildings		Residential buildings							
	May 1981	May 1980	May 1981	May 1980	May 1981	% change from May 1980	May 1981	% change from May 1980	May 1981	May 1980
ILLINOIS	2,513	2,577	850	801	3,557.9[a]	+ 7.2	5,028.0	+0.4	8.1	7.3
NORTHERN ILLINOIS										
Chicago	64	40	34	6	1,700.6	+ 6.5	3,142.2[b]	-0.4	7.7[b]	6.7[b]
Aurora	19	18	5	13	156.9	+15.1	36.0	-0.3	9.3	7.0
Elgin	51	76	3	0	104.6	+20.9	27.8	-0.4	7.9	8.0
Joliet	49	49	3	9	373.1	+ 5.6	34.4	-0.3	12.1	11.6
Kankakee	3	5	0	0	82.1[c]	+ 7.0	35.9[b]	-1.4	11.0[b]	10.2[b]
Rock Island-Moline	24	25	10	10	129.8[d]	+ 4.3	100.8[e]	-2.7	9.4[e]	7.5[e]
Rockford	42	24	9	23	161.3	+ 6.0	120.1[b]	-1.4	9.0[b]	8.5[b]
CENTRAL ILLINOIS										
Bloomington-Normal	45	43	14	15	51.5	+ 8.4	58.4[b]	+7.0	6.0[b]	5.5[b]
Champaign-Urbana	15	27	8	11	56.0	+ 9.2	80.3[b]	-1.1	6.0[b]	5.3[b]
Danville	18	19	3	2	50.3	+18.6	16.1	-1.8	13.7	13.6
Decatur	28	25	8	4	152.8	+19.0	53.6[b]	+0.9	11.3[b]	10.3[b]
Galesburg	14	7	1	3	29.9	+ 3.8	13.7	+2.2	11.1	12.8
Peoria	22	25	9	10	189.6	- 0.2	157.1[b]	-1.6	8.3[b]	7.4[b]
Quincy	35	35	4	2	41.0	- 1.0	18.5	+1.7	8.6	9.1
Springfield	26	16	8	7	116.7	- 3.0	90.4[b]	+1.7	6.5[b]	6.8[b]
SOUTHERN ILLINOIS										
East St. Louis	0	0	0	0	20.4	-13.6	23.4	+7.8	11.5	11.6
Alton	3	4	5	4	81.0	+23.3	14.7	+8.1	11.1	11.5
Belleville	2	3	4	7	28.7	+ 5.9	18.6	+8.1	13.2	10.7
Carbondale-Murphysboro	9	4	3	0	31.6	-16.6	27.0[f]	+3.1	8.9[f]	7.3[f]

[a] Total for cities listed. [b] Data for Standard Metropolitan Statistical Area. [c] Includes immediately surrounding territory. [d] Includes East Moline. [e] Data for Illinois part of Davenport-Rock Island-Moline SMSA. [f] Data for Carbondale-Murphysboro LMA. n.a. not available.

The International Role of the Dollar

RICHARD D. BARTEL

The demise of Bretton Woods and the rapidly changing position of the United States in the world economy has eroded the dollar's central position in the international monetary system. Under the Bretton Woods System, the dollar had been universally acceptable as the key official reserve asset in addition to gold, and as the central transaction, or "vehicle," currency for private business. Private banks, firms, and individuals used the dollar for working balances to conduct international trade, services, and capital transactions. It was the universal international unit of account and store value. The international role of the dollar ultimately hinges on the vitality of the American economy and confidence in our political and economic institutions to sustain our economic growth and stability. Events of the 1970s have clearly undermined that confidence. As a result, the international monetary system is evolving toward a multi-asset reserve system in which the dollar's role is gradually being supplemented by other key national currencies and the special drawing rights (SDR).

US Current Account and the Dollar as a Reserve Asset

The structure of US international payments, in the final analysis, underpins the dollar's role and the extent to which it remains a central reserve asset. Over the long term, it is the surplus or deficit on current account, together with long-term capital flows, which will determine the dollar's international value as an official reserve asset and transaction currency. The link between this country's balance of payments and the creation of dollar reserves and their exchange value has been succinctly expressed as the so-called "Triffin Dilemma." Evolving from that link are the issues surrounding (1) the adequacy of reserves relative to the growth of world trade and investment; (2) confidence in the value of accumulated dollar holdings; and (3) the reliability of the dollar as a unit of account and transaction vehicle. Specifically, the two horns of Triffin's dilemma can be set out as (1) the growth of world reserves in a dollar-exchange system depended on US deficits on current account and long-term capital flows to generate financial assets which foreign official agencies and the private sector willingly held. Yet, the cumulation of US dollar liabilities to foreigners eventually raised doubts about our ability to convert them into gold (under Bretton Woods, until official suspension of redemption in 1971). Later in the 1970s, doubts about their exchange value led to recurrent dollar crises and periodic devaluations and depreciation. Thus cumulative deficits ultimately undermined universal acceptability and led to diversification out of the dollar to other assets by the end of the decade. (2) Elimination of the current account deficits, on the other hand, and cumulative surpluses would choke off the supply of dollar reserves. The constricted supply of dollars would make them more desirable as an official or private reserve holding, but the international system as a whole, under the circumstances, would risk inadequate growth in reserves to finance the expansion of world trade and investment. Gold production under Bretton Woods failed to fill the gap, giving rise eventually to the creation under international auspices of a supplementary medium, the IMF's SDR.

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"Benefits" and "Costs" Accruing to Reserve Currency Country

The Europeans especially have been quick to stress the advantages accruing to the US as the key reserve currency country. The US, they argue, has in the past used its reserve currency status to absorb real resources from the rest of the world through a persistent payments deficit and by depreciating in real purchasing power its net dollar liabilities to the rest of the world. In the late 1960s the US persuaded foreign central banks to refrain from converting their dollar balances into gold. At least since the Washington Agreements on gold transactions in March 1968, the gold window was only reluctantly held open and, of course, after August 1971 was officially closed. Thus, foreign official institutions were forced, in effect, to acquire US government dollar liabilities in financing the American payments deficit. This deficit enabled a larger absorption of world resources than if gold convertibility had remained in effect.

The second advantage derived from US ability to depreciate the stock of foreign-held dollar assets in a general inflation, thus reducing the real purchasing power of these assets over time. American banks shared a third set of benefits related to large transactions associated with the dollar's role as a key reserve asset and major transaction currency for financing international trade and investment. The depreciation in real terms of the stock of net dollar liabilities to foreigners, in addition to a persistent payments deficit (that is, flows into the stock), are benefits accruing to the US which in the light of the experience in the 1970s, seem to be limited in time. The continued cumulation of dollar reserve assets led eventually to a loss in confidence in the dollar as a reserve currency — the Triffin dilemma becomes operative. Indeed, a series of dollar crises followed, ultimately causing a reluctant use of dollars as a reserve.

Critics of US reserve currency status neglect the real costs incurred by the domestic economy in efforts to sustain a stable monetary reserve. To the extent this country eliminates current account deficits and runs a surplus, the supply of new dollar assets is diminished and the real purchasing power of foreign dollar holdings is preserved. But this implies domestic costs measured by slower real economic growth, and lost real income and wealth over time. The welfare loss from slower growth may be partly offset by gains stemming from the higher purchasing power of the dollar and the improved terms of trade resulting from policy restraints and the external surplus. Moreover, in this scenario, the second part of the Triffin dilemma becomes operative. The US current account surplus (providing it exceeds long-term capital outflows) stops the creation of dollar reserve assets and acts as a drag on the growth of international trade and investment without some alternative reserve asset to supplement the role of the dollar.

US Policy Conflict: Engine for World Growth Versus Stable Reserve Currency

During the post-war period American economic policy pursued a variety of international objectives, but two were particularly important for the viability of Bretton Woods. At home and abroad, the US grappled with sustaining economic growth, while simultaneously fostering a stable international monetary system with the dollar established as the key reserve currency. High rates of domestic growth, it was argued, spilled over to the rest of the world economy via multiplier effects through the US current account. Put simply, US imports stimulated expanding production and employment abroad. As a result, the old Triffin dilemma haunted policymakers, as cumulating dollar liabilities to foreigners were eyed with growing suspicion by the late 1960s. Because of the self-destructing link between the US role as an engine for growth, and as a central reserve currency country, the Bretton Woods system eventually cracked and collapsed.

The struggle for freedom to pursue both domestic growth and a stable international monetary system culminated in the early 1970s in two major switches from past policy: (1) the adjustable pegged system of Bretton Woods was displaced in 1973 with an evolving managed float system; and (2) the dollar's role as the key international reserve was suplemented by the creation of SDRs. The first objective was to help the US to escape the domestic policy constraints imposed by the dollar's reserve role, while permitting appropriate adjustments in the structure of exchange rates to reflect better the changing structure of production costs and prices among major trading countries. The second policy switch was intended to provide alternative reserve media which were independent of any issuing country's current account deficit. The link between the mutually conflicting roles of the dollar had been weakened, but a clean break still remained for the 1980s.

Reasonable Expectations for Flexible Rates?

Many economists and policymakers alike had great expectations for more flexible dollar exchange rates. A floating exchange rate would free monetary policy to pursue domestic full employment. Or an economy could aim at an inflation rate different from that of the rest of the world and the exchange rate would automatically and smoothly move to offset the differential. This expectation for independent policy action was based on the belief that exchange rates moved fairly smoothly, following a purchasing power parity path on which differentials in national inflation rates would be fully offset by compensating movements in floating exchange rates. Further, a floating exchange rate was expected to insulate the domestic economy from international disturbances. The domestic price level would not have to adjust to foreign price disturbances, because the floating dollar rate would adjust.

The lessons learned from floating since 1973, as compared with pegged rates before 1971, taught that expectations for floating were partly misinterpretations of economic theory on flexible exchange rates and partly correct within a much broader timeframe. First, experience with managed floats had created a fairly broad consensus about how exchange rates are determined. Over a longer sweep of time — at least one year and more — exchange rates do seem to move in ways broadly consistent with purchasing power parity theory. Just as domestic monetarism and the relationship between the rise of domestic price levels and the growth of monetary aggregates holds in the long term, exchange rates over the long term seem to offset differential rates of national price inflation. In the short run, however, purchasing power parity holds little explanatory power.

A widely accepted, new theory of exchange rate determination persuasively argues that rates are determined in the short run by short-term capital flows and the process by which market participants achieve optimal portfolios of financial assets. A whole host of expectational factors acquire importance in this framework as portfolio managers related expected and actual changes in monetary policy, interest rate structures, and exchange rate movements to their profit-optimizing objectives for financial portfolios. In this short-term world of animal spirits and mercurial psychology, experience since 1973 shows how exchange rates overshoot purchasing power parity paths by extraordinary margins.

Second, the expectation that flexible rates would insulate the domestic economy from external disturbances is generally true for *monetary* phenomena. If one country allows excessive monetary expansion to generate a monetary inflation, a second country can avoid importing the inflation by allowing its currency to appreciate. Advocates of flexible exchange rates, however, have not suggested that flexibility will prevent changes in relative prices — oil price increases relative to other goods, for example — from being transmitted to the domestic economy with an impact on the domestic price level.

Finally, the expectation that domestic authorities may pursue policy independently from that of neighboring countries holds some truth. No country under flexible rates is compelled to import inflation generated by a neighbor. The domestic price level can be held stable, but the currency must appreciate. The problem, as some Europeans complain, is that appreciation bears a cost in terms of eroding export competitiveness. The shift from pegged exchange rates before 1971 to managed floats after 1973 has shifted the nature of the policy constraint. The balance of payments and the gain or loss of reserves constrained domestic policy in the pegged system, while exchange appreciation or depreciation constitutes the constraint on domestic policies in a flexible rate system. The managed float operating at present falls somewhere between the polar extremes of ideally pegged and perfectly flexible to combine both balance of payments and reserve constraints of the former with exchange appreciation and depreciation of the latter.

The lessons of the 1970s mark important progress both in the understanding of economic theory and the explanation of real-world behavior and in our ability to formulate more rational policy in a complex and changing world. These lessons have taught policymakers that international coordination of monetary policy is as essential under a managed float as in a pegged rate system. The last decade marks important progress in the development of institutional frameworks to carry out such coordination. Regular summit meetings of heads of state and finance ministers, monthly sessions of central bankers at the Bank for International Settlements, Working Party meetings within the OECD, ongoing negotiations through the IMF, all attest to the growing commitment to concerted action not only in monetary policy but in other broad areas such as energy.

Stress on Adjustment

Apart from international policy coordination, there is a reinforced awareness that greater stress should be placed on real adjustment in the future. Real adjustment here means that domestic price structures will be allowed to change, that export and import volumes will be free to respond to changes in prices and that labor and capital will be encouraged to move between industries, economic sectors, and geographic regions. Experience of the 1970s teaches that movements in *real* exchange rates — nominal exchange rates adjusted for price inflation — have contributed importantly to international adjustment. The time lags, however, are long — at least one to three years for the initial and full effects of exchange rate changes to have an impact on export and import volumes. Thomas D. Willett in particular argues persuasively that the most promising way to improve the operation of the international monetary aspects of the world economy is to focus on the process of international and domestic adjustment. Flexible exchange rates should be coupled with strengthened surveillance of national policies to promote *adjustment,* not simply surveillance, of central bank foreign exchange intervention.

Indeed the renewed stress on adjustment is embodied in the thrust of Federal Reserve policy during 1978–79. The extraordinary policy shifts of November 1978 and October 1979 have virtually returned US foreign economic policy full circle. Once again, the monetary authorities have explicitly given higher priority to the dollar's external position and a domestic anti-inflationary policy that is consistent with a reserve currency country. The efforts to slow the growth of the monetary aggregates, to create positive real interest rates in the American economy, and to discourage flight from the dollar have produced positive results. It reflects again the lesson of the 1970s that central bank exchange intervention alone cannot achieve exchange stability. That objective depends on appropriate monetary policy and real adjustment.

Adjustment Costs

We should not lose sight of the real costs of this policy switch, even as other countries applaud the Federal Reserve policy to strengthen the dollar. It may yield lower economic growth at least for the near term. This may very well spur renewed criticism from the Europeans when a recession cuts back American imports and worsens the trade performance of other countries, particularly the developing countries, which are already hard pressed by the rise in oil prices. It will be difficult for the US to function both as the world's engine for growth and as the exclusive key reserve currency country. The major surplus countries could share in the responsibility for one role (growth engine) or the other (key reserve center). Certainly, while Germany, Japan, and Switzerland, among others, ran domestic growth policies and current account surpluses which were consistent with reserve currency countries, they persistently set up obstacles against the use of marks, yen, and Swiss francs as official assets. Fortunately, as the 1980s begin, those policy positions may be softening.

Outlook for the Dollar as Reserve Currency

What is the outlook for the dollar as a reserve currency? The dollar will undoubtedly remain the most important reserve asset in the 1980s. Nonetheless, a multireserve asset system is clearly evolving. Other currencies, including the mark, yen, Swiss franc (and perhaps even the pound sterling in the short run), the SDR and the ECU of the European Monetary System will gradually assume larger roles as reserve assets. This multireserve asset system is likely to bring certain inherent instabilities, simply because asset holders will have greater opportunities to shift the composition of their reserve holdings. Portfolio diversification will contribute to periodic swings in exchange rates that may often be inconsistent with economic fundamentals underlying the long-run strength of the US and other economies. Thus the problem of overshooting appropriate paths for key exchange rates will very likely persist in the 1980s.

The prospect for the dollar remaining the key reserve currency for the 1980s derives largely from the probable outlook for the US payments deficit and OPEC's investable surplus. The 1979–80 round of OPEC oil price increases will set loose an extraordinary surge in OPEC net investable revenues. Alternatives to dollar assets are simply too few and too small in magnitude at the present to meet the huge coming demand for OPEC investment outlets. Some numbers help to give the rough size of these investment requirements for the near term. The

OPEC net investable surplus may climb to roughly $115 billion in 1980, up from $68 billion in 1979 and $5 billion in 1978 (IMF *World Economic Outlook*).

This burgeoning flow of new OPEC funds seeking investment outlets could push their public and private-sector net external assets from an estimated $160 billion at the end of 1978 to over $300 billion by the end of 1980. Moreover, more than half of the total will probably be concentrated in the portfolios of Saudi Arabia and Kuwait. These figures illustrate the large potential for exchange rate instability resulting from even relatively small shifts in the portfolio composition of the major OPEC investors to achieve their diversification objectives. The multiasset reserve system apparently evolving now and into the 1980s may well contribute to increased diversification opportunities and add to capital mobility between them. It is the increasing capital mobility which, according to Willett, in the 1970s has contributed most to wide swings in exchange rates. The best way to dampen wide swings in exchange rates is to reduce the inducements to switch. That means dampening erratic changes in interest rate differentials, narrowing divergent movements in price levels, and reducing disparities in real economic performance and in the conduct of stabilization and monetary policies across countries.

There are alternatives which fall in the category of exchange controls and/or regulation of the international capital flows and the Euro-markets. European countries have had some success in achieving these ends, including at various times, the UK (oldest exponent of controls), Germany (Bardepot and domestic capital market restrictions), Switzerland (negative interest charges and domestic capital market restraints), and France and Belgium (two-tiered foreign exchange market) among others. The European countries and Japan have had a long tradition of controls over international capital movements and exchange controls, and over time have developed the institutions and expertise to implement them. Still, they have learned such controls are not effective for very long. Market participants quickly find loopholes and evasive techniques. To underscore that point, the emergence and growth of the Eurocurrency market itself was spurred by the US government's introduction of restraints on capital flows and investment in 1965 (Sammons study in the SSEC). New controls now are not likely to be any more effective; they will probably only hasten new evasive financial techniques.

The Eurocurrency Markets, Their Growth and Stability

Closely linked to the issues of the role and stability of reserve currencies is the growth of the Eurocurrency markets during the 1970s. The interactive development of the Eurocurrency markets, multinational corporations, and international banks resulted in an electronic communications network spanning the globe and functioning virtually 24 hours a day. The locus of decisions concerning a multitude of economic transactions shifted from the national to a global level that affected all manner of operations on a worldwide scale. The multinational banks were the instruments which changed the structure of global banking and finance, just as the global nonfinancial enterprises altered the structure of global production. This institutional and market network has greatly enhanced capital mobility and broadened opportunities for placing and borrowing funds at the most advantageous rates.

The gross size of the Eurocurrency markets — including liabilities to nonbanks, central banks, and other banks — rose fourfold from 1970 to some $460 billion in 1975 and more than doubled to about $1,235 billion in early 1980. Netting out interbank transactions, the growth picture remains the same, although the absolute size is smaller. Net claims quadrupled from 1970 to $250 billion in 1975, and then rose to $630 billion by early 1980. Eurodollars constituted roughly 75 percent of total Eurocurrency liabilities.

The Eurocurrency markets have become a source of borrowed reserves for deficit countries, as well as an investment outlet for the central bank reserves of smaller countries and the investable surplus of OPEC countries. Thus these markets and the multinational banks in the last decade have become increasingly involved in financial and foreign exchange operations which were traditionally the province of central banks and international financial institutions, such as the IMF. This is a significant development quite apart from the extraordinary growth of the Eurocurrency markets and their increasingly central role in financing private trade and investment transactions around the world.

The implications for national economic policy are cloudy but of potentially great importance. Many of the conventional instruments of economic stabilization, taxation, and regulatory oversight cannot reach some of the operations of global banks and of nonfinancial corporations. Indeed, they often choose the multinational route as much to evade regulation and policy restraints as to enhance their corporate efficiency (in the SSEC).

The integration of national money and capital markets into a global network adds to the complexities of central bank operations and policy strategies. It raises new concerns for bank regulation and regulatory oversight, while contributing at the same time to more efficient allocation of money and capital worldwide. Policymakers have grown increasingly concerned that the Eurocurrency markets pose potential problems for the effectiveness of monetary policy and for the prudential position of commercial banks and the stability of the banking system.

With respect to *monetary policy*, the unbridled growth of Eurodollar liabilities diminishes the precision of domestic monetary control. It is difficult, however, to gauge accurately how much the growth in Eurodallar markets affects spending in the United States, since such Eurobalances are used to finance transactions in other countries. Further, the effects of restrictive monetary policy are distributed unevenly across domestic and Eurocurrency markets. To achieve a desired degree of monetary restraint would require a disproportionate share of the burden to fall on smaller banks and other economic sectors which usually suffer from periods of tight money. The Federal Reserve, recognizing the leakage of control, responded in the 6 October 1979 package by imposing an 8 percent marginal reserve requirement on the growth in managed liabilities, including bank liabilities to their foreign branches. (That requirement was subsequently eliminated in July 1980.) Nevertheless, the Eurodollar liabilities of foreign branches still are free from reserve requirements, so that some leakage remains.

Policy Proposals for the 1980s

Looking ahead to the 1980s, the US should play a big role in shaping the international monetary system. In that evolutionary process the dollar may not escape as the key reserve currency, but other supplementary reserve units should be encouraged. Since the US must achieve sufficient domestic growth to provide jobs for a growing labor force in the next two decades, this country's contribution to world economic welfare is heavily weighted as an engine for growth. As I have argued here, the growth role may be constrained by the role as a reserve currency country. In all probability, the US will continue to face deteriorating external terms of trade for much of the 1980s, largely because of our energy and raw materials situations. We need flexible exchange rates in periods of substantial structural adjustment, and the dollar therefore will in all likelihood be subject to periodic weakness. Consequently, the US should reinforce the move toward a multireserve asset system over the long term, and reinforce the reserve role of the SDR in particular.

In this scenario, the IMF would play an increasingly growing role as (1) an issuer of reserve assets; (2) a regulator of global liquidity to prevent inflationary excesses; (3) a lender for financing balance of payments problems; and (4) an overseer of national policies for economic adjustment and exchange intervention. Under the present weighting system for voting such policy, the US undoubtedly could continue to dominate the ultimate shape and implementation of the strengthened role for the IMF. This larger role implies a sacrifice of some national sovereignty, which for some countries may be more difficult than for the US. Yet, if we are to gain greater freedom for domestic policy objectives, we must give up some of the constraints imposed by an exclusive reserve currency status.

Toward the enhanced role of the IMF, the US should give continued support to the supplemental financing facilities: (1) oil facility; (2) supplementary financing facility; (3) trust fund (operating on gains from gold sales); (4) compensatory financing facility; and (5) extended facility. These five funding arrangements have an extra quota cumulative value equal to approximately half the cumulative tranche drawings from the IMF. In addition, Congress should actively support the 50 percent increase in IMF quotas under the Seventh General Review of Quotas, effective 1980, that would greatly enhance the IMF's position in financing the current account deficits of oil-importing countries in the near future. Such legislation is already before Congress, and given the urgency of financing needs, should be expedited.

Proposals for implementing a substitution account are essential to promote the SDR as a prominent reserve asset. This arrangement would enable the IMF to exchange SDR-denominated securities for foreign exchange holdings of national currencies (mostly dollars). The substitution account would not only provide an alternative reserve unit, but would contribute to more rational control of Eurodollars held as reserve assets. Smaller central banks and OPEC countries could hold SDR securities as reserves rather than dollars.

The substitution account can be implemented only gradually, even after the considerable time required to iron out the technical details. In the interim, central banks can do much to provide new types of nondollar assets to meet the huge forthcoming demand. Securities denominated in nondollar, hard currencies can be "sold" offmarket for dollar balances to the smaller central banks and OPEC authorities to satisfy some of their diversification requirements. The process of mopping up central bank reserves in the Eurodollar market could actually result in a multiple contraction of Eurodollar liabilities, analogous to a Federal Reserve sale of Treasury securities to the nonbank public. Some foreign central banks will balk at the prospect of acquiring US dollars for their own securities, leaving them vulnerable to exchange loss in the event of dollar depreciation. Here the US may have to assume part of the exchange risk as an economic cost which is necessary to achieve a reduction in the dollar's reserve role.

A final point should be made concerning the huge recycling problem confronting private banks and markets, international institutions, and governments in the early 1980s. The financing scenario of 1975–76 will probably not be repeated in the next few years. Private banks are not in the favorable position they enjoyed earlier in the 1970s, while the IMF has greatly enlarged resources. Therefore, the recycling process must increasingly be accomplished through international institutions and governments. In the process the country risk associated with this borrowing should be shifted as much as possible directly to the OPEC surplus countries or to multilateral institutions. At present the risk is disproportionately borne by private banks holding short-term liabilities which are backed by long-term credits. Whether by design or not, US banks have decelerated their lending to non-OPEC LDCs in the last two years, in contrast to the accelerated lending by foreign banks. Given the integration of international banking operations, problems with foreign banks — like Herstatt — can threaten American banks as much as trouble with one of our own institutions. Thus, US efforts to shift the ultimate country risk to OPEC should be organized with the close support of other major banking centers.

Policy Strategies and Options in a Dynamically Changing World

Two fundamental transformations in the global economic environment which challenge US policymakers in the 1980s and beyond — the oil and energy revolution and the adverse shift in comparative advantage accompanying the rapid industrialization of the developing world. The discussion of policy alternatives that follows emphasizes these transformations as permanent mutations in the global environment which pose structural problems requiring real adjustments over the long term.

In evaluating the effectiveness of policy alternatives, it is critical to recognize that the American economy's response to policy instruments is quite different today from that under the Bretton Woods system. The US has become an *open economy* operating in a *flexible exchange rate* system with financial institutions and markets that enable an unusual degree of international *capital mobility.* Each of those characteristics — open economy, flexible exchange rates, and capital mobility — reflects significant changes in the US economic environment emerging in the 1970s. That poses new policy constraints. As a result, the effectiveness of macroeconomic policy, trade measures, or a new industrial strategy, depends on how the policy affects dollar exchange rates and the subsequent repercussions of changing exchange rates on the domestic economy. The stress in the following discussion is on a policy thrust that promotes real adjustment to overcome the loss of American economic vitality and overall competitiveness resulting from the oil crisis and the adverse shift in comparative advantage, both of which are ongoing developments into the long-run future.

Macroeconomic Policy Mix, External Balance, and US Real Adjustment

The deterioration of the US trade and current accounts during the 1970s gives warning about the global competitiveness of the American economy. As summarized earlier in this essay, the SSEC studies have contributed substantially to a clearer picture of the various causes of the balance of payments problem, and to a discussion of corrective measures. This section examines major policy issues and policy alternatives and recommendations, drawing from the relevant SSEC international studies. One note of caution is important: while the discussion often alludes to the current account — mainly because of the detailed discussion in the foregoing section — it should be pointed out that a more appropriate external target for long-term policy would include long-term capital flows, together with transactions on merchandise trade and invisibles. This is particularly important for the US, since this country's position as a foreign investor looms large in the world economy. As previously indicated, the structure of the current account, long-term capital flows, and their combined balance are critical in determining the dollar's role in the international monetary system.

Our receipts from US sales of goods and services not only go for payments of imported goods and services, but sustain the outflow of capital for long-term investment. In the final analysis, foreign economic policy should at least consider what responsibilities the US should assume in international finance as well as the longer-term outlook for the structure of the current account. The following discussion, however, abstracts from the distinctive role of the dollar and from the role of the US as net lender.

Macroeconomic Policy Mix. Economic experience from the 1970s persuaded many economists that the appropriate analytical framework for macroeconomic policy was one of an open economy, operating in a flexible exchange rate system with a high degree of capital mobility. In this environment, not only do external shocks have a direct and speedy impact on the domestic economy through the current account, via income changes, exchange rate fluctuations, and relative price changes, but changes in domestic policy have similar repercussions on foreign economies via the same transmission mechanisms. A change in domestic fiscal policy, for example, not only affects incomes and prices at home, but also the levels of exports and imports and, in a floating exchange system, dollar exchange rates. In addition, actual and expected changes in interest rates generate short-term capital flows which also cause substantial near-term swings in dollar rates.

An example, setting out two polar cases, helps to illustrate the choices and issues when policymakers in an open economy confront high capital mobility and flexible exchange rates. Suppose the US attempts to move toward full employment, using stimulative fiscal expansion, combined with monetary restraint aimed at external balance.

In the first polar case, the monetary authorities hold the money stock constant and allow interest rates to rise as the government budget deficit places demand on the capital markets. Since the monetary authorities resist buying government bonds, capital flows in from abroad in response to the rise in domestic rates, and foreign funds finance the government deficit. This capital inflow can cause a substantial appreciation of the dollar in a very short time. Meanwhile, the fiscal stimulus affects domestic income, stimulates imports, and causes a deterioration in the trade balance. The latter tends to depreciate the dollar and improve the competitive position of American exports (the effects of which occur with substantial 1- to 2-year time lags). The dollar appreciation (induced by the capital inflow) tends to decrease export competitiveness while the dollar depreciation (induced by the trade deterioration and the income expansion) tends to raise export competitiveness. The net effect is by no means certain. The greater the degree of capital mobility — hence the greater the initial dollar appreciation — the more likely will the decline in export competitiveness prevail. One clear result, however, is that this policy of borrowing abroad to finance the trade deficit cannot continue indefinitely. The accumulation of foreign debt will eventually create crises of confidence and an eventual flight from the dollar.

The *second polar case* assumes the monetary authorities hold the level of interest rates fixed, so that capital flows are not induced by rising interest differentials. To the extent that the central bank is able to achieve this objective, the rising government deficit under the fiscal stimulus program would be financed by domestic monetary expansion and/or crowding out the private sector in domestic capital markets. In this extreme case with no capital inflows, the dollar does not appreciate ~~as~~ in the first case. Dollar depreciation does occur in response to the deterioration of the trade balance (induced by fiscal stimulus and expanding income). With the public sector deficit financed domestically, in large part by monetary expansion, the clear result of this polar case is accelerated domestic inflation and dollar depreciation. It should be stressed particularly in this case that exchange market expectations will play a very important role. Recognition by the market that the central bank is undertaking monetary expansion will probably induce capital flight, even if interest rate differentials do not change initially. The contribution of expectations is to amplify fluctuations of exchange rates and accelerate the whole adjustment process.

In reality, policymakers find themselves operating somewhere between the two polar extremes. A major conclusion from these examples is that for the long-term strategy, the US cannot heavily weight its policy mix with foreign finance of the public sector deficit (case 1).

That policy mix is appropriate for transitory or cyclical economic disturbances which are turned around in a relatively short time. Since our economic problems are far more deeply rooted in structural and secular difficulties related to dynamic change, a long-term macroeconomic policy mix would be more heavily weighted by the case 2 scenario. The logical thrust of that argument is that dollar exchange rates will have to be a more deliberate policy instrument in the long-run future to assist the process of structural and dynamic adjustment. A major conclusion emerging from the SSEC authors (Branson, Willett, Dornbusch) is that moving from a fixed- to a flexible-rate system in general improves the effectiveness of monetary policy. The effect of the shift to a managed float is to weaken the effectiveness of fiscal policy, however. Fiscal policy's impact is uncertain and depends basically on the sensitivity of capital movements to interest rates, on the one hand, weighed against the sensitivity of the current account to income and exchange rate changes, on the other.

Finally, a policy mix aimed at long-term adjustment will have to incorporate both interest rate and fiscal measures to affect the composition of aggregate demand between consumption (including government spending), investment, and net exports, while bringing appropriate balance between the public and private sectors. This implies over the longer term that first domestic aggregate demand must be maintained within the constraints of aggregate supply to prevent excess demand inflation. Second, a policy that deliberately uses a real dollar depreciation in the adjustment process will have to restrain domestic consumption (by households and government) and transfer resources into the investment and export sectors. This basic macroeconomic strategy for long-term adjustment is by no means simple or easy to achieve. Therefore, such a program will have to be supplemented by industry-specific policies to overcome particular supply bottlenecks and other rigidities inhibiting intersectoral and interindustry resource shifts. These problems of microeconomic policy with a supply-side thrust are discussed elsewhere along with the issues of commercial policy.

COAL (continued from p. 3)

announced that such a concession made good economic sense.

Given the situation, the operators were not likely to rush toward achieving a second, appeasing contract which would foster the belief that greater concessions could be had from the industry by striking. They believed this to be the union's problem. The union's leadership had assured the industry that this contract could be sold to the membership and a protracted strike avoided if the operators granted everything they could. Moreover, the BCOA's bargaining team recognized that internal union politics might delay any settlement. Negotiators were fearful that any proposed settlement would be voted down by the political harangue of the dissident candidates.

The Settlement. As the strike wore on into May, the operator's costs of disagreeing with the union's terms began to outweigh their costs of agreeing. Some steel and utility companies were forced onto the spot market to replenish their stockpiles as a hedge against a long strike. At least one state was starting measures to cut back electric power consumption. Record second-quarter losses would be listed by several coal companies. The permanent loss of markets to nonunion operators, particularly the nascent export market, was feared. The rank-and-file's resolve to stay out, to protect the security of their union, appeared unmarred.

The important local union elections were settled by mid-May. Church was able to solidify support and involved the bargaining council more directly in bargaining policy, securing their input in, and accountability for, the decisions being made. After an unacceptable proposal made by the industry on the subcontracting issue, the most difficult to resolve, a second tentative agreement was reached by the end of the month. The bargaining council approved the pact by a solid 36-2 vote. The contract was ratified on June 6 by a 69 percent majority, almost the same margin that defeated the first settlement. UMW miners started reporting back to work after striking for 73 days.

Since the failure of the first agreement, the union still did not get, and did not really bargain for again, a cost-of-living escalator, more time off, and tighter mine safety rules; but it was successful on the union security issues. The operators would continue to pay royalties on the purchase of nonunion coal. They also agreed to preserve the jobs of those UMW miners who do work that could otherwise be given to non-UMW subcontractors, a version of an earlier "contract work standard." This clause had required the subcontractors used by unionized employers to compensate their workers according to UMW standards. The union gained a 37.5 percent wage and benefit package over the 40-month term of the agreement.

Prospects for the future. The average miner lost about $6,000 in wages during the strike, but in some way was able to maintain the security of his union in the near

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term. The prospects for the future of the UMW as an industry-wide force in coal labor relations is in some doubt. Because the UMW's reputation as a strike-prone union continues, organizing efforts may suffer further damage, particularly in the West which has the most productive coal fields. The industry, having lost faith in the credibility of the UMW leadership, may now expect a strike in 1984 and act accordingly, building larger stockpiles, and holding back on its best offer. Doubts as to the reliability of union coal to service expanding export markets will continue. The expensive pension-funding schedule will allow nonunion firms to pay the union wage scale and still be price competitive. It is John L. Lewis's prize multiemployer Welfare Fund which is so costly to maintain, but this institution may be the only thread holding a centralized bargaining structure together, at least for the time being.

Control of the industry by large, diversified firms, affording their coal subsidiaries greater financial staying power during a strike, has altered the structure of collective bargaining. The trend toward decentralized, fragmented bargaining, like that existing in the oil industry, started with the 1977–78 negotiations. It continues, perhaps inexorably. In such a structure, the power of the United Mine Workers of America would pale in comparison with the past.

New BEA County Data for Illinois Available, 1974–79

The new Illinois county data released from the Bureau of Economic Analysis have recently arrived. County sets for Illinois are available for personal income, employment, farm income, and transfer payments. They cover the years 1974 to 1979 and are for sale, replacing previous sale items. The personal income and the employment tables replace tables for 1973 to 1978, dropping 1973, adding 1979, and reviewing the figures for 1977 and 1978. Farm income and transfer payments tables supersede sets for 1969 to 1977 and 1972 to 1977 respectively. The 1978 and 1979 numbers are new, while those for 1976 and 1977 have been revised.

Personal income, employment, and transfer payment sets include pages for each Standard Metropolitan Statistical Area. Charge is $20 for each of the four sets of all counties to cover reproduction and handling charges. Sets of old tables are still available for personal income and farm income only. Combined sets of old and new tables are $25 each. Individual pages are $1 each with a $5 minimum charge.

Two sets of Illinois statewide personal income are available: detailed components of Illinois personal income (intermediate table) 1958–79; and Illinois personal income by major source and earnings by 2-digit SIC, 1958–79. These two sets are available for the US also. Charge is $5 for each set.

To obtain these data sets, write to the Bureau of Economic and Business Research, University of Illinois, 428 Commerce West, 1206 S. Sixth St., Champaign, IL 61820. All sets originate with the Bureau of Economic Analysis of the US Department of Commerce.